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ARCHITECTVRE

ENGINEERING

DECORATION

CONSTRVCTION

TICKNOR & COMPANY

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CONTENTS.

Editorial Summary.
Builders' Hardware.—XXII.
The Lotus in Ancient Art.—III.
Specification-Writing.
Societies.
Building-Law.
Communications.
Notes and Clippings.
Trade Surveys.

ILLUSTRATIONS.

Railroad Station, Battle Creek, Mich.
(Gelatine Print issued only with Imperial Edition.)
The Bryn Mawr School, Baltimore, Md.
Church of All Saints, Pasadena, Cal.
Competitive Design for a Schoolhouse, Yonkers, N. Y.
Church of San Miguel, Jerez de la Frontera, Spain.
The Mohawk Block, Buffalo, N. Y.

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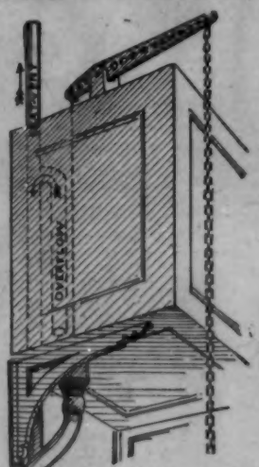

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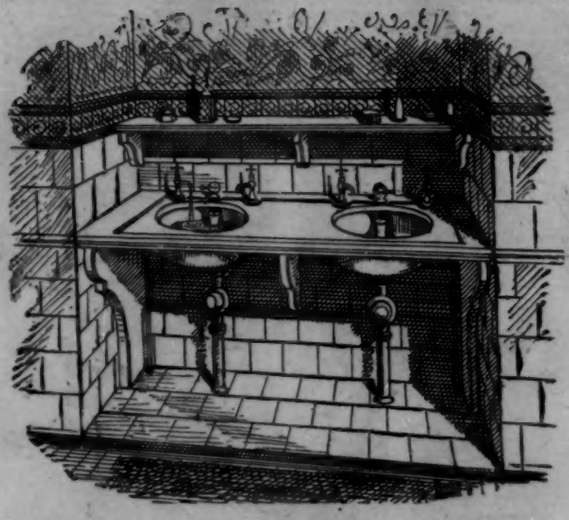

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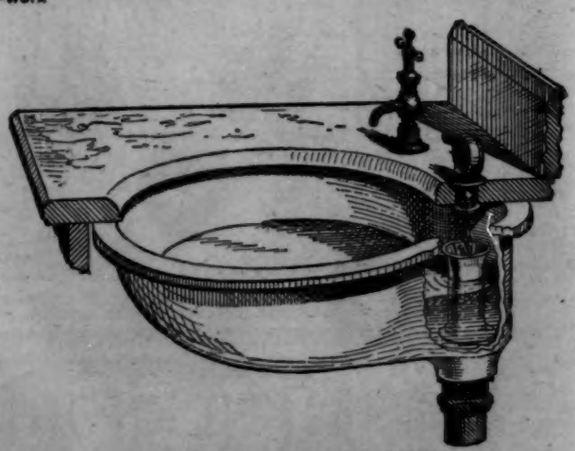

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CONTENTS.

SUMMARY: —
Appointment of Mr. James H. Windrim as Supervising Architect of the Treasury Department. — The Office of City Architect in Boston. — Proposed Music-hall for New York. — A West Virginia School-house Competition. — Major Lydecker and the Washington Aqueduct. — More Particulars concerning the De Bausset Air-Ship. — Balloons in Warfare. 145
BUILDERS' HARDWARE. — XXII. 147
THE LOTUS IN ANCIENT ART. — III. 148
ILLUSTRATIONS: —
Railroad Station, Battle Creek, Mich. — The Bryn Mawr School, Baltimore, Md. — Church of All Saints, Pasadena, Cal. — Competitive Design for a School-house, Yonkers, N. Y. — Church of San Miguel, Jerez de la Frontera, Spain. — The Mohawk Block, Buffalo, N. Y. 150
SPECIFICATION-WRITING. 150
BUILDING LAW. 155
SOCIETIES. 155
COMMUNICATION: —
Payment for Unexecuted Plans. 155
NOTES AND CLIPPINGS. 156
TRADE SURVEYS. 156

THE public is to be congratulated on the selection of Mr. J. H. Windrim, of Philadelphia, as the new Supervising Architect of the Treasury Department. Mr. Windrim has been long and favorably known in the profession, and the appointment will meet with general commendation among architects. Whether Mr. Windrim himself is to be congratulated, we are not so sure. If it is a necessary part of an American architect's lot to be so moderately favored by fortune that the pittance offered by the Government for such service can attract men so popular and distinguished as Mr. Windrim, the sooner the profession is emancipated the better. There is no public officer in the United States from whom so much technical skill, administrative ability and honesty are expected as from the Supervising Architect. Yet his technical knowledge, which costs him as much to acquire as that of any lawyer, is repaid by a yearly salary which would not be accepted by a Government counsel as a fee for two days' attendance in court, while his care in managing a corps of five hundred professional subordinates, or in regulating and accounting for the expenditure of many millions of dollars a year, either of which would bring a salary of at least twenty thousand dollars a year to the president or treasurer of a private corporation, are furnished gratis.

THE subject of official architecture is one of great importance to the profession, and such influence as architects of repute can exert to have public service of this kind, if it cannot be provided for as it is in other civilized countries, at least put into the hands of men who command the respect of the profession, is well applied. Next to the Supervising Architect of the Treasury, the official architect in this country who controls the expenditure of the most money is the City Architect of Boston, and if, as is reported, a new appointment is to be made in this case, the members of the profession in Massachusetts owe to their fellow-citizens the duty of pointing out, as no one else can, the errors that have been made in the administration of this part of the public service, and the best way to avoid them in future. It is notorious enough that the management of the public architecture in Boston has at times been a disgrace to the city. Not only, as we mentioned a few weeks ago, have buildings erected under the City Architect cost in some cases nearly or quite twice as much as similar buildings erected in neighboring towns, but evidence has been produced, showing that, so far from securing structures of the best class by this lavish expenditure of money, the city has been defrauded by the undetected, or unopposed, substitution of inferior materials and workmanship for those required by the contracts between the city and certain individuals, whose right to such favors remains to be explained. It is fair to say that in plan and design the Boston public buildings have generally been good, and we do not wish to suggest that the official architects did not try to do their duty in supervising their erection, but the fact remains that the design and supervision have cost as much in official hands as they would have in those of a private architect, while the city has lost the benefit of the responsibility for mistakes to which a private architect would be held, and has suffered immensely through the feebleness of the supervision which an over-driven official, necessarily so little familiar with the details of the numberless designs pushed through his office as to forget what his plans and specifications called for, can give.

IF it is necessary to have professional public officers of this kind at all, about which we are by no means sure, it seems to us that in the assignment of the duties which they are to perform a good lesson might be learned from the example of the other professional officers attached to the United States Government. In every other Department or Bureau the chief official devotes his time, not to devising schemes for the public benefit out of his own head, but to examining those proposed by others, digesting and comparing them, and, if he sees fit, recommending them for execution, and seeing that they are properly carried out. The Attorney-General finds himself much better occupied in examining and criticising the briefs of the various Government counsel than in writing them himself; the Commissioner of Education can do more good by engaging specialists to write on topics of which he perceives the importance, and by disseminating their essays among the public, than by trying to write them all himself; and in the same way, an official architect in a great city like Boston can, we think, be far more useful in editing, so to speak, the designs for new buildings prepared by different men, who have leisure and skill enough to study them properly, and in seeing that they are carried out exactly according to contract, than in trying to make them, or direct the making of them, himself. In a place like Boston, long experience has shown that certain peculiarities in school-house design, for example, are suited to the character of the population, and that, perhaps, it is desirable to fulfil certain conditions of drainage, heating or ventilation. These matters may not be known to architects in general, but by providing for the review of designs for city work by a man familiar with them, all the advantages to be derived from the skill and ingenuity of the ablest men in the profession, working at their best, may be secured in connection with whatever conformity with local tradition may be advisable. In the offices of the Inspectors of Buildings in our large cities a very similar set of traditions has grown up in regard to matters left discretionary with the Inspectors. Without any interference with architects' freedom of design, within the limits of the law the influence of the Inspectors, in examining and passing upon plans, has tended to promote a uniformity of construction which has, on the whole been advantageous to the public, and to the art of building, while it has greatly facilitated the most important part of their own works, the prevention of gross mistakes in carrying out construction.

A PLAN for a gigantic music-hall is being discussed in New York, and a plot of ground has already been secured on the corner of Seventh Avenue and Fifty-seventh Street, comprising nearly twenty-three thousand square feet. On this is to be erected a structure as perfect as study of the best existing music-halls in the world can make it, and capable of accommodating three or four thousand people. Nearly a million dollars has been promised, and there can hardly be a doubt that the plan will be carried out. New York certainly needs a good music-hall. Steinway's and Chickering's, although good, are too small for the audiences which would often like to occupy them, and the theatres are too expensively built for general use as music-halls, and are not very well adapted to that purpose. The situation of the proposed building is very central, and it seems likely to prove a good investment for its owners.

THE Board of Education of Wheeling, West Virginia, recently advertised for plans for a new school-house, and, we are glad to say, by so doing incited Mr. O. S. Philpott, an architect of the city, to write a letter to the *Daily Intelligencer*, setting forth the unfairness of expecting architects to furnish for nothing the various plans that the Board wanted. If it

was desirable to compare a number of different plans, he said, why should not the Board pay those who could make them for their trouble in doing so? To offer architects only the chance of employment was, he thought, insulting to them, as putting them on a level with gamblers, and he advised all respectable architects to refrain from having anything to do with the affair. We are much inclined to think that they will follow his advice, and that the Board will have, as is usual in such contests, nothing but a lot of crude, ignorant plans presented to them to make a selection from. Of course, they will not know, unless they have engaged an accomplished architect to advise them, that the designs are crude and ignorant, and the authors of them will fill the air with praises of their perfections; but this will not alter the facts of the case, and the result will be, we fear, that one more specimen will be added to the crowd of badly planned, badly built, badly ventilated, badly heated, ugly and vulgar structures in which our American children lose their eyesight, their health and their morals, as a sacrifice to the vanity of people in power, too ignorant to know that there is such a thing as scientific school-building, too conceited to listen to any one who knows more about it than themselves, and too mean to follow his advice, if by chance it should be forced upon their attention.

THE examination of the Washington Aqueduct shows that the work has been shamefully done, the brick lining being hardly backed up at all, so that in many places a man can walk a long distance between the rock-cutting and the brick-lining. It is estimated that it will cost five hundred and fifty thousand dollars to make it fit for service, and meanwhile, as it would be dangerous to admit the water to it, a temporary pipe is to be laid on the surface of the ground, to convey the water where it is needed. As usual, the newspapers have fallen foul of Major Lydecker, under whose supervision the work was done, as the principal culprit, instead of the contractor who impudently violated his contract, and pocketed the money; on the principle, which is as old as humanity, that the man who succeeds in what he undertakes, even if that is a gigantic robbery, is to be envied and praised, while the unsuccessful man, even if he undertook nothing more than to try to catch the thief, is saddled, not only with the burden of his own fault, but with the sins of the thief whom he failed to catch. In accordance with this view, Major Lydecker is to be tried by court-martial, on a charge which seems to be, in substance, that he believed what the contractor told him, instead of finding out the truth for himself. What is the penalty for this crime in the military code we do not know, but when the court-martial gets through with the Major, we hope it will turn its attention to the contractor. Even though he may not be amenable to military justice, the opportunity for establishing the difference between actual swindling and the simple inability to detect the fraud, is too good a one to be lost.

SOME time ago we had occasion to comment upon a scheme for building a balloon, or rather air-ship, of steel, not inflated with hydrogen, but made buoyant by being exhausted of air. To aid in the undertaking, Congress was asked to appropriate a hundred and fifty thousand dollars, and we expressed the idea that, while it was very desirable that the solution of this great problem should be generously aided with public money, the proposed air-ship, as described in the daily papers, presented so small a margin of ascensional power, in comparison with its own bulk and weight, that there might be danger that this small margin would be absorbed by unforeseen conditions, atmospheric or otherwise, and the craft would be reduced to a mere useless dead-weight. Since then we have obtained more accurate information in regard to the plans and calculations of the inventor, and the difficulties certainly seem less, and the chances of success greater, than the first description would have led one to suppose. The floating cylinder is to be of rolled steel, one-forty-fourth of an inch in thickness, braced against collapse by internal ribs in a way which has been carefully studied out, and is ascertained to give a resistance to external pressure twice as great as will be required. The weight of the cylinder, which, with its conical ends, is about seven hundred and fifty feet long, is something like one hundred and fifty tons, and its displacement, supposing only three-fourths of the air in it to be exhausted, will be about two hundred and seventy-six tons, leaving a force available for ascending of one hundred and twenty-six tons. From this, to obtain the net ascensional force available for lifting passengers or freight, must be deducted the weight of the car and of the propelling machinery to be placed upon it. Here, as it seems from the particulars we now possess, was the principal point in which our previous calculations, or rather, estimates, were at fault. Learning that the force was to be derived from accumulated electricity, operating through electric-motors upon air-pumps, we estimated the weight of such electric accumulators, motors and air-pumps as are in common use for supplying the one hundred horse-power mentioned as the amount to be provided, and found that the total, added to a moderate allowance for the weight of the car, would nearly absorb the available balance of ascensional force, leaving what we thought too small a margin for contingencies. It seems now, however, that instead of the enormously heavy electric-accumulators that we are familiar with, Dr. de Bausset, the inventor of the apparatus, has devised something quite different, which will furnish far more power, with a given weight of material, than the lead plates in ordinary use. The pumps, moreover, are to be specially designed, and constructed of aluminium and steel, so as to reduce the weight to a minimum, and, as we suggested at the time would be desirable, the principle of the gas-engine has been adopted in a device for supplementing the force of the electric-current. By these great economies the weight of apparatus has been so reduced as to leave a balance of ascensional force at the sea-level available for lifting passengers and freight of seventy-five tons. This certainly gives a reasonable allowance for contingencies, and, if a craft of this kind can be built for one hundred and fifty thousand dollars, as is estimated, capable of carrying anything like seventy-five tons of mail-matter or a thousand passengers, at the rate of a hundred miles an hour about the world, the experiment is well worth trying at the public expense; or, if that is objectionable, at the expense of persons who may be willing to risk a little money for the prospect of a great profit if the experiment should result successfully.

THE consequences of a successful issue to the undertaking would be so momentous that they can with difficulty be realized. The first result would unquestionably be to put an end to wars. To show how hopeless any military operations would be in a country defended by such weapons, we will suppose that Prince Bismarck, after waiting until Dr. de Bausset has, unknown to him, completed a few of his air-ships, carries out the intention which a good many people in this country attribute to him, of picking a quarrel with us on the pretext of a dispute about Samoa. War is declared suddenly, after the German manner, and the military trains which are said to stand ready packed, with the horses at hand for harnessing, in the German arsenals, are set in motion. The transports, which lie equipped for sea, are filled with men from the nearest garrison, and in a few hours an immense force is on its way to invade America. About half-way across the Atlantic the fleet is met by one or two de Bausset air-ships, which sail about, far out of reach of shot, and, taking position in a leisurely manner, drop a five-hundred-pound shell filled with explosive gelatine into the funnel of each, and, having thus annihilated the expedition, proceed to Berlin to treat the remaining portion of the hostile army in the same way. Of course, it might be that the Germans would have the air-ships first, and the war would be brought to a conclusion by the unconditional surrender of all the principal cities in the United States, under the persuasion of a dynamite-shell held suspended over each; but it would be so easy to turn the tables at a moment's notice that, after a few towns had been mutually blown up, the quarrel would be terminated by common consent. In regard to passengers, the air-ships, if they proved practicable at all, would offer such immense advantages in point of safety, speed and comfort, that they would soon supersede all other conveyances for travelling long distances. It seems to us that the proposed speed of one hundred miles an hour would in practice be greatly exceeded. There would be no such obstacles to fast sailing in the air as are met with in ocean-travelling, in the shape of waves, fogs, and danger of collision. By keeping ships on the outward passage in the lower strata of the atmosphere, and the inward-bound ones in the upper strata, serious collisions would be out of the question; and, provided the speed could be made to exceed that of the air-currents as much as that of steamships exceeds that of the ocean-currents, it is difficult to see what danger would remain of which travellers by well-built and well-managed air-ships need be afraid.

BUILDERS' HARDWARE.[1]—XXII.

VESTIBULE-LATCHES.

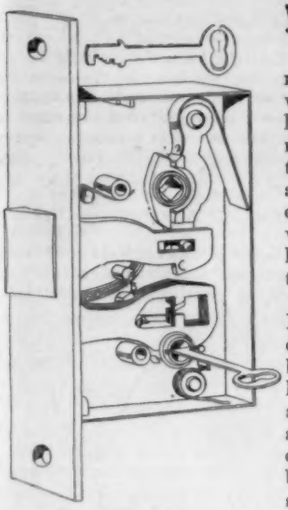


Fig. 328. Front-Door Lock. P. & F. Corbin.

THESE are always sold in sets, with a front-door lock, and the levers are so arranged that the same latch-key will open both, the vestibule-lock having no dead-bolt. But, more generally speaking, a vestibule-latch may be considered as any spring-lock having no dead-bolt. When used for a vestibule-door the latch should have swivel-spindles and levers to lock the outside-knob.

Figure 328 is a pattern which P. & F. Corbin list as a front-door lock, but which seems to be more properly a vestibule-latch. The key lifts the levers and moves a plate on which are two posts *A* and *B*, one of which must pass the gatings before the other can reach the shoulder on the latch-bolt *C*, and force it back.

Figure 329 is the vestibule-latch sold with the front-door lock represented by Figure 327.

Figure 330 is a Standard knob-latch manufactured by the Yale & Towne Company, which, is not, properly speaking, a vestibule-latch, but which is worthy of consideration in this connection. It is provided with triple-springs, thus permitting a very easy action on the part of the striker while giving all

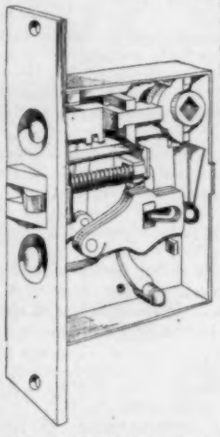


Fig. 329. Vestibule-Latch. Enoch Robinson.

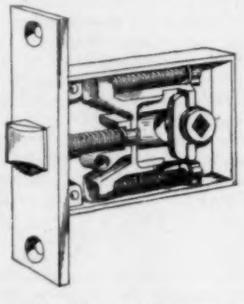


Fig. 330. Standard Knob-Latch. Yale & Towne Mfg. Co.

necessary strength to resist the turn of the knob. This can be adjusted to either right or left hand doors.

HOTEL-LOCKS.

Hotel-locks are usually made to order, and master-keyed in sets. In a large hotel all the locks on a floor can be opened with one key. In smaller buildings all the room-locks are master-keyed in a single series. The protection afforded by locks which are master-keyed is, of course, less than it would otherwise be, as a master-keyed lock can very easily be picked if the principle of master-keying is understood, and in most cases master-keying benefits no one but the hotel-keeper. Except with the "Yale" and the "Hopkins & Dickinson" cylinder-locks, there has not yet been devised a really satisfactory system of master-keying. The two exceptions will be described in a subsequent chapter.

The simplest and also the cheapest method of master-keying is illustrated by one of "Corbin's" locks, Figure 331. The gating on the one lever is made so wide as to admit of fifty different positions, in any one of which the bolt-post could pass. The room-key raises the lever so as just to clear the top of the gating, and the master-key allows the post to clear the bottom of the gatings. A bent wire would serve quite as well for opening the lock as either of the keys. Fortunately for occupants where such locks are used, it is customary to fit hotel-locks with a small bolt, worked from within. Figure 332 is much better. The levers are exactly like those of any ordinary lock, except that there is a shoulder *A* at the back of each. Beneath the bolt-tail is a fourth lever, with an arm on

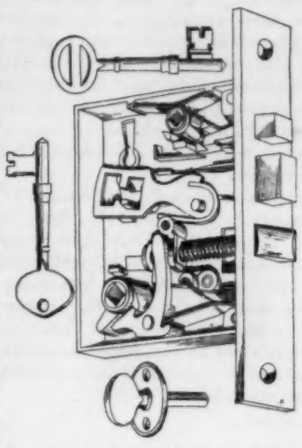


Fig. 331. Master-keyed Lock. P. & F. Corbin.

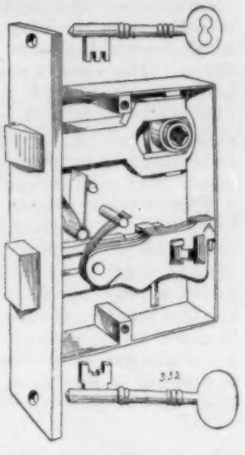


Fig. 332. Master-keyed Lock. Hopkins & Dickinson Mfg. Co.

it, rising so as to catch under the shoulders *A*. This lever is protected by a ward about the key-hole. The room-key lifts

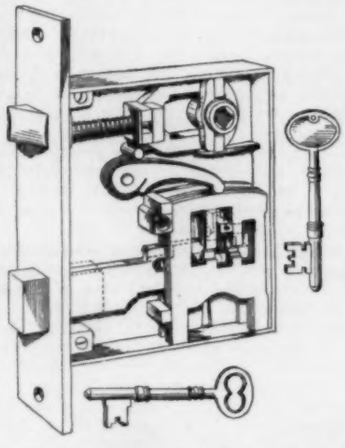


Fig. 333. Master-keyed Lock. Hopkins & Dickinson Mfg. Co.

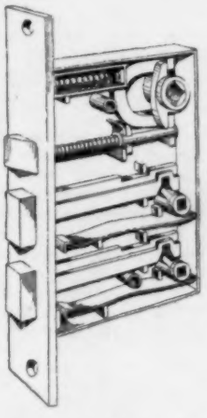


Fig. 334. Hotel-Lock. Hopkins & Dickinson Mfg. Co.

the levers and shoots the bolt without disturbing the fourth lever. The master-key lifts the fourth lever without touching the others, the shoulders being so sized that the master-key lever will bring the gatings on the locking-levers into line.

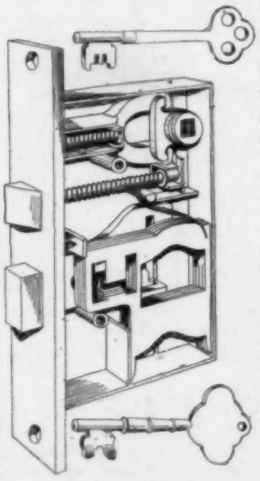


Fig. 335. Standard Hotel-Lock. Yale & Towne Mfg. Co.

Figure 333 shows another form of master-keyed lock by Hopkins & Dickinson. In this instance the regular key and the master-key work from either side of the lock in the same key-hole on the same tumblers and bolts. Still, each has a different set of tumbler-rackings and a different post in the bolt. When the master-key is used the bolt-post for the regular key is thrown down by a patent device, and another post brought up in the second rackings of the tumblers. When the master-key is removed the lock is set in use for the regular key. It is claimed that 1,200 of these locks can be made, all different, each lock with a key of it own which will fit no other, and with master-key to pass all. This is a rather expensive lock, however, and on that account is not used a great deal. The idea is an exceedingly ingenious one.

[1] Continued from page 124, No. 690.

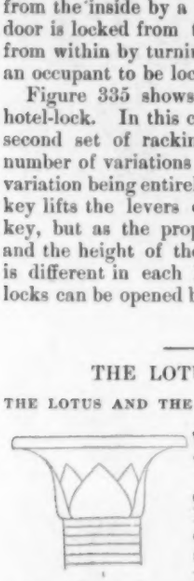
Figure 334 shows a Hopkins & Dickinson lock, or rather bolt, used for hotel and office doors between connecting rooms. This is intended to be used when it is desired to have the door definitely locked from either side, so that it cannot be unlocked from the other side, and, accordingly, the handles which operate the bolts are placed on opposite sides of the doors. The same company also manufactures a hotel-lock which is so arranged that the locking-bolt can be operated from the inside by a turn-button, instead of a key. When the door is locked from the outside it can at any time be opened from within by turning the button, so that it is impossible for an occupant to be locked in the room.

Figure 335 shows the construction of a Yale "Standard" hotel-lock. In this case the master-keying is provided for by a second set of rackings cut in the levers, so that almost any number of variations can be had in a given series of locks, the variation being entirely in the lower set of rackings. The room-key lifts the levers exactly the same distance as the master-key, but as the proportion between the lengths of the bits, and the height of the lever bellies above the lower key-hole is different in each lock, it is easily understood why no two locks can be opened by the same room-key.

[To be continued.]

THE LOTUS IN ANCIENT ART.[1]—III.

THE LOTUS AND THE PAPYRUS; THE LOTUS AND THE ROSETTE.

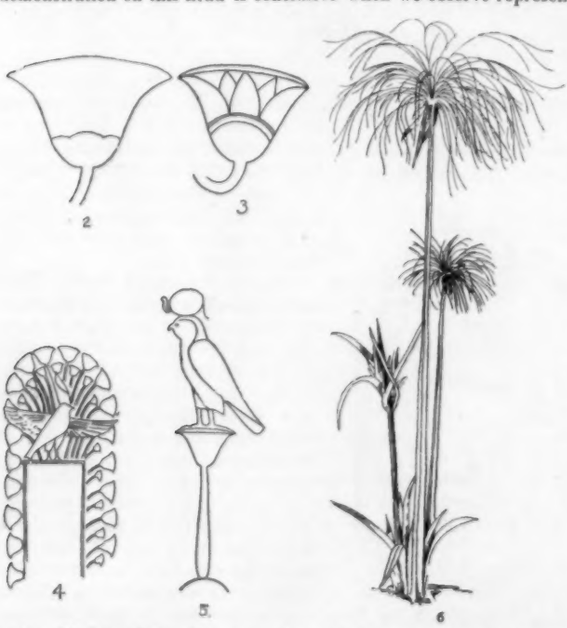


THE observations tending to show that the rosette in ancient art (from which it has descended to be part of the stock-in-trade of all modern decoration) was originally an Egyptian lotus motive, and not an Assyrian ornament, as hitherto supposed, may be assisted by some preliminary notes on the subject of the papyrus.

According to generally current views, the papyrus and the lotus shared the honors in Egyptian decoration. Among authorities in decorative art, Owen Jones, and among Egyptologists, Mariette, have been especially prominent in attributing a papyriform origin to the campaniform capital (1).

Perrot, who does not accept this theory of the campaniform capital in his "*History of Egyptian Art*," speaks, notwithstanding, of the form (2) as a papyrus. This is the prevalent view of it, but only because attention has not been called to the subject.

The form 2 is really only the form 3 in conventional outline. The demonstration on this head is conclusive when we observe represen-

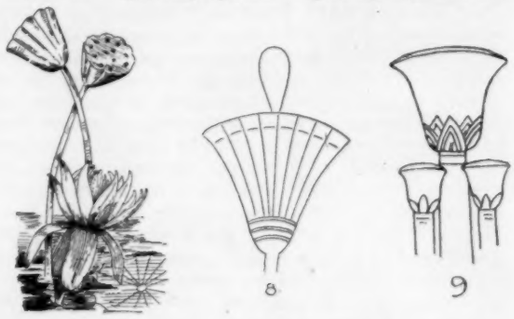


tations like 4 and 5. Figure 4 shows the Egyptian god Horus, in his guise of hawk, standing on a stèle surrounded by lotus flowers. Figure 5 shows the same god standing on a stèle having the campaniform capital. The Horus hawk in this cut supports the solar disk, an illustration of the association of Horus with the sun previously noted. In my first paper on the Ionic capital the association of Horus with the lotus has been explained, and it is conclusive for the forms in question.

[1] Continued from No. 689, page 118.

The confusion of the lotus with the papyrus has been assisted by the fact that the papyrus is extinct in Egypt, and, consequently, unknown to the current personal observation of the Egyptologists. As illustrated by the cut herewith (6), borrowed from Perrot's "*History of Egyptian Art*," the light, feathery nature of the plant has little in it to suggest the solid form of an architectural capital, and although it might be urged that the lotus flower itself has no especially solid outline or construction, we have in this case the religious significance of the flower as explanation, which is wanting in the case of the papyrus. Besides, there are countless cases in which the lotus flower is directly represented in architectural use, and no such case can be proved for the papyrus. The umbelliferous outline of the head of the plant does certainly correspond to the outline of the campaniform capital. Undoubtedly the Egyptians might have taken a suggestion from its outline. As a matter-of-fact, they did not.

The papyrus is grown as a curiosity in some private gardens in Cairo, but it does not in this way come under the observation of travellers. It is generally quoted as growing in a stream near



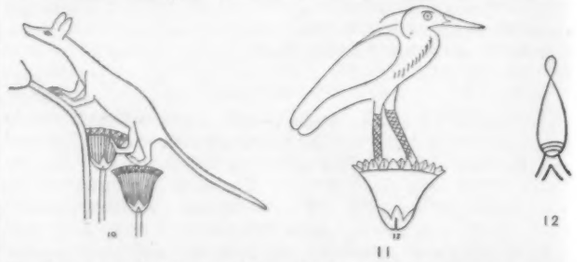
Syracuse, in Sicily, and as otherwise not easily accessible to observation in its wild state. The plant has been naturalized in America. It is cultivated by Mr. Sturtevant, the florist of Bordentown, N. J., whose lotus ponds have already been mentioned, and has thus been transferred to many of the park fountain-basins in New York City.

In considering the confusion which has arisen concerning the use of the papyrus and the lotus in Egyptian art, it is to be remarked that the rose-colored lotus is also extinct in Egypt. Consequently, Egyptologists are not familiar by personal observation with the peculiar seed-pod represented at 7. (Also shown in the first paper on the Ionic capital.)

The form 8, which is taken from the ceiling border of an Egyptian tomb, illustrated by Prisse d'Avennes, is not far removed in outline from Figure 2. The ridged, perpendicular lines of the natural seed-pod give the clue, however, to the decorative form (which supports an inverted bud).

Certain Egyptian capitals of the shape illustrated at 9 appear to be derived from the rose-lotus seed-pod, rather than to be modifications of the conventional campaniform lotus flower.

As regards the papyrus, certain representations in Rosellini's "*Monumenti*" are quite conclusive, in which birds and animals are



standing on umbelliferous forms which are positively seed-pods of the lotus, as neither the flower itself nor the head of the papyrus plant could possibly give the amount of support required and indicated.

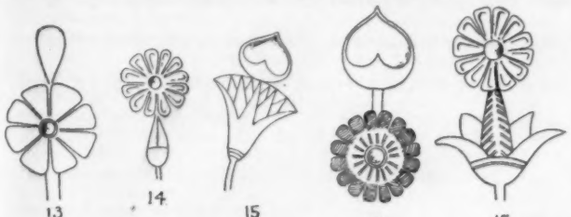
In 11 the pointed projections at the top of the pod indicate the seeds which, in nature, project slightly from the small, cup-like recesses which contain them. A modified representation of the same appearance is seen at 10.

THE LOTUS AND THE ROSETTE.

There is no apparent connection between the subject of the rosette and that just considered. The only question is one of association, by which the significance of the rosette is partly determined. It is important to eliminate from Egyptian decoration all misconceptions on the subject of the papyrus, as the association of the rosette with forms of papyrus would not be significant. The great multitude of associations with the lotus form become clearer when the outlines of the seed-pod of the rose-lotus and the conventional campaniform lotus motive are recognized distinctly.

As regards the rosette, we may observe in the first place the constant appearance in Egyptian decoration of different details of the lotus in conventional combination. For instance, in the ceiling-borders illustrated by Prisse d'Avennes, we may add to No. 8, in which the seed-pod of the rose-lotus supports an inverted lotus bud, another case in which one bud erect supports another inverted (12). When we add the cases in which a rosette supports the bud (13), and in which a bud supports a rosette (14), the question naturally arises: Are these also cases of lotus association?

From the same decorations, we now add the cases in which a lotus flower supports a lotus leaf, and the question again presents itself: Are the cases in which a rosette supports a leaf also cases of lotus



association? Such associations, to which we may now add those in which the lotus flower itself supports a rosette (17), become comprehensible when we examine the seed-pods of the white and blue lotus. The cuts herewith, 18 and 19, are taken from the botany plates of the "*Description de l'Egypte.*"

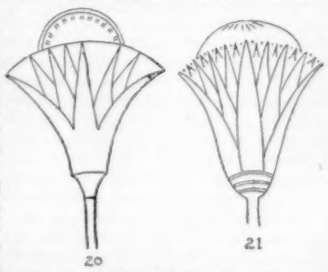
Egyptian design constantly evades representations in perspective by the union of objects seen at the same time, or in the same combination at once in elevation and in plan. We have, therefore, no difficulty in understanding a representation of the top of the seed-pod or ovary as supported by the flower.

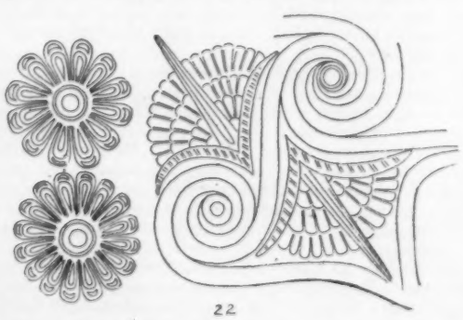
18

Comparison of 18 and 19 with 7 shows that the seed-pod of the rose-lotus has not the rayed top; and in certain decorative combinations, of which 20 is an example, we have probably a section of the top of the seed-pod of the rose-lotus rising above the flower. Figure 21 appears to show a similar combination, possibly the rounded top of the pod rising above the flower. In these cases, the brilliant yellow color of the curved sections correspond to the color of the seed-pod of the rose-lotus.

19

In a preceding paper the size of the seeds of the rose-lotus has been mentioned as about that of a small filbert. The taste is agreeable, not unlike that of a chestnut but not as raw. During a visit to the lily-ponds at Bordentown, I was advised by the nurseryman in charge that the boys of New Jersey had already discovered the virtues of the new edible, which is grown in sufficient quantities in a pond near the town to make excursions for this delicacy an object. We know from Herodotus and other ancient authors that the Egyptians used the seeds for food and made bread of them. The same use was made of the seeds of the white and blue lotus which are

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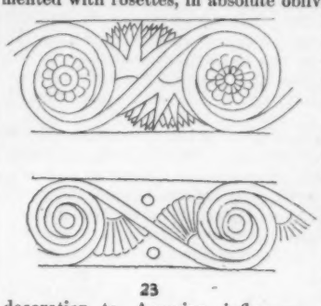
contained inside the ovaries and have the size of small grains. It appears even that the lotus was sowed as a food crop. All this would make it extremely natural that the Egyptians should have found a decorative motive in the rosette form of the stigmas of the white and blue lotus.

The most curious oversight of modern archæology is its prejudice that the rosette is a distinctive Assyrian form and that the Greek rosette is hence derived. Authors like Longperier[1] and Charles Chipiez[2] have attributed the decoration of certain vases figured at Karnak to a foreign influence on the ground that they are ornamented with rosettes, in absolute oblivion of the fact that the rosette is a constantly recurring motive in Egyptian tomb decorations which antedate the earliest known instances of a Babylonian or Assyrian rosette by at least seven hundred years. In that most recent history of ancient art which is supposed to summarize all accepted results up to date M. Perrot treats the rosette off-hand as a distinctively Assyrian ornament. German authorities on Greek vases invariably refer a rosette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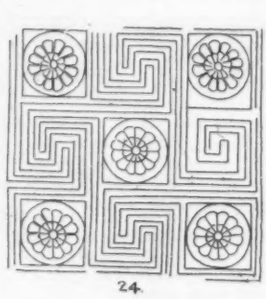
decoration to Assyrian influence. When the ceiling fresco at Orchomenos was recently discovered by Schliemann, Professor Sayce immediately attributed the rosettes to a Babylonian influence, although the decoration has a thoroughly Egyptian character.

The decoration at Orchomenos (undoubtedly of Egyptian style) dating from the prehistoric Greek period (time of the Mycenæ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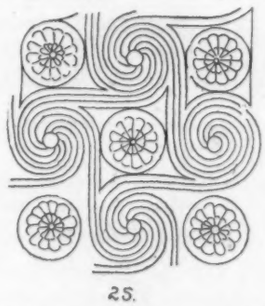
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jewelry) is illustrated at 22 as a typical case of the constant union in Egyptian decoration of the lotus, the rosette and the spiral. Nos. 23, 24, 25, are illustrations of the frequent appearance of the rosette in Egyptian decoration. All are details from tombs of the eighteenth and nineteenth dynasties: *i. e.*, dating back to a period beginning about 1800 B. C. The earliest instance of an Assyrian or Babylonian rosette appears on the dress of a Babylonian king of the twelfth century B. C. There are no remains of Assyrian ornamental art earlier than the ninth century B. C. Most of the Assyrian rosette decorations belong to the eighth and seventh centuries.

26

This prejudice in favor of the distinctively Assyrian character of an ornament which is so common in Egypt and which appears there in constant use so much earlier than it appears at all in Assyria can only be explained as follows: In publications of Assyrian monuments the reliefs have been the most constantly illustrated objects and it is on these reliefs that the rosettes constantly appear. In Egyptian publications the architectural reliefs have also been the most generally illustrated objects and in Egyptian relief the rosette is almost unknown. It is in the Egyptian tomb-paintings that the rosette is a constant form and these had not been abundantly illustrated until the publication of Prisse d'Avennes in 1879. In the earlier folios of Champollion and Rosellini there are some details by which they are illustrated but they were published at a time when the high antiquity of the eighteenth dynasty was not an axiom of Egyptian chronology. Perhaps the most important explanation is that the history of ancient ornamental art antedating the period of the Greeks has not yet been scientifically founded.

27

28

In defining the rosette to be a lotus motive we may return for a moment to the Ionic capital, noticing the appearance of the rosettes within the lotus volutes in the capitals of the Erechtheium and in the capital from Selinus illustrated at 26 (the demonstration still to be offered for the lotiform derivation of the "egg-and-dart" moulding will considerably assist the general argument as a cumulative point). The appearance of rosettes within the volutes of the Persian-Ionic scrolls (capitals of Persepolis and Susa) is another case in point. We are now prepared to understand the rosettes figured on the Cypriote lotuses, as in Figure 27. Another case in point is

[1] In "*Musée Napoleon III.*"
[2] In "*Histoire des Ordres Grecs.*"

shown at 28, the detail of a Cypriote vase in the Lawrence-Cesnola collection in England.

The relations thus established between the rosette form and the ovary stigmas of the white and blue lotus do not militate against the palpable cases in which a rosette form is derived from a concentrically arranged series of rayed lotus petals, a view of the flower itself seen in plan as it were. These are easily distinguished from the pictures of the ovary stigmas by the pointed aspect of the petals. The angled terminations of the blue lotus stigma are blunter. These last are most clearly represented among the gold ornaments found by Dr. Schliemann at Mycenæ.

In preceding papers note has been taken of interpretations offered by MM. Colonna-Ceccaldi and Dieulafoy of the lotiform Ionic. According to the matter herewith presented their views on the subject of the ovary, already made sufficiently improbable, would appear to be permanently set aside. Colonna-Ceccaldi conceived the ovary to be represented by a triangle which was really a calyx-leaf. Dieulafoy conceived the ovary to be represented by a form which was really a bud inverted.

As regards the rosette in Assyrian decoration it is to be observed that it generally appears in association with lotus motives which are admitted to be borrowed from Egypt. Its appearance in early Greek vase decoration is invariably with lotus patterns and lotus derivatives.

Wm. H. Goodyear.

[To be continued.]

THE ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

RAILROAD STATION, BATTLE CREEK, MICH. MESSRS. ROGERS & MACFARLANE, ARCHITECTS, DETROIT, MICH.

[Gelatine Print, issued only with the Imperial Edition.]

THE BRYN MAWR SCHOOL, BALTIMORE, MD. MR. HENRY RUTGERS MARSHALL, ARCHITECT, NEW YORK, N. Y.

THE building for the Bryn Mawr School for Girls which is now being erected on Cathedral Street is intended to accommodate 150 day scholars. It will be 90 feet front and 70 feet deep and 80 feet to the peak of the roof from the level of the ground. It will stand in the middle of a block with its front on the street line. The whole block will be surrounded by a high wall and the part not occupied by the building will be used as a play-ground. The building is to be thoroughly fireproof throughout. It is planned in compact form to insure facility in management. In order to make the best use of the space it has been found desirable to adopt different levels for the two sides of the building as shown by the section. There will be a gymnasium on the south side occupying the height of basement and first story on the north side. On the north side the basement will be used for spray-baths, a plunge-bath, dressing-rooms and locker-rooms in connection with the gymnasium, while the first story will be occupied by cloak-rooms and reception-rooms. The lofty room on the north side of the second story will be used as a "silent study room" in which each scholar will have her desk and from which the pupils will go to the recitation-rooms which occupy the remainder of the building. The drawing-room, laboratory and science lecture-room being on the top floor. All the class-rooms are grouped about the central hall, which is lighted by a sky-light in the roof, and by direct sunlight through the south attic room. This hall is faced throughout with English glazed brick. The gymnasium and connecting rooms, the lavatories and the science lecture-room and laboratory are also faced with the glazed brick. In connection with the silent study room there will be a reference-library. Particular study has been made of arrangements which have been suggested as desirable by practical teachers in this country and abroad and a strict attention to these requirements has furnished the elements of the design of the exterior. In all cases the windows of class-rooms rise to the ceiling level and have sills high above the floor. As to the exterior effect, the building is to be a study in brown. Stone will be used to the second story and above that brown brick in three slightly contrasting shades. The roof will be of dark brown tile. The ornamental effects above the first story are to be produced entirely by the use of the brick of different shades worked into the designs suggested by the sketch. Thus the value of the masses will be retained without risk of such baldness as brick of one color would be likely to give. The high wall around the property it is hoped will give an effective base to the structure which will thus attain dignity in the simplicity of its masses while picturesqueness will be gained by the difference of floor levels and the variation of fenestration which this necessitates. Especial care has been given to the heating and ventilation of the building. The triangular prism at the peak of the roof is made use of as a horizontal ventilation-shaft which will be closed automatically to windward; the suction from the lee side aiding the special aspirating-shafts which are arranged to draw the vitiated air from all the rooms.

CHURCH OF ALL SAINTS, PASADENA, CAL. MR. E. A. COXHEAD, ARCHITECT, LOS ANGELES, CAL.

THE building is to cost about $26,000 when finished, but at present the outside only is finished. It will be of frame, the lower portions of walls being of a dark red stone; the upper parts shingled. The front gable is "half-timber work." Tower shingled.

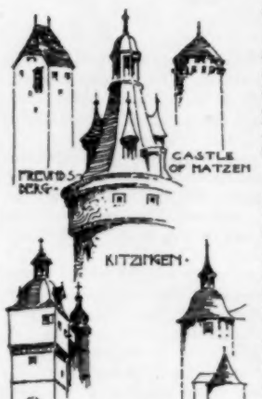
COMPETITIVE DESIGN FOR A SCHOOL-HOUSE, YONKERS, N. Y. MESSRS. HAMILTON & MERSEREAU, ARCHITECTS.

MATERIALS proposed. Stone basement, brick and terra-cotta above, with copper roof-finishings. Cost about $100,000.

CHURCH OF SAN MIGUEL, JEREZ DE LA FRONTERA, SPAIN.

THE MOHAWK BLOCK, BUFFALO, N. Y. MR. E. A. KENT, ARCHITECT, BUFFALO, N. Y.

SPECIFICATION-WRITING.



AS specification-writing is a matter of perennial interest, we need make no apology for copying *in extenso* from the *Journal of Proceedings, R. I. B. A.*, the following abstract of a paper on the subject, by Mr. T. M. Rickman, F. S. A., and the discussion it engendered:

MR. THOMAS M. RICKMAN, F. S. A., *Associate*, began by stating that the specification was one of the means employed by the architect to carry his design into execution. The design was in his mind. The drawings presented a reproduction of the design in scale projection; they were a representation of the idea in the architect's mind. The specification was the translation of the design into technical language, describing the selection of the materials and the construction of the whole. The duty of the writer of the specification was to translate the design, from all the materials at his disposal, into another language: from the image in the mind of the architect to a technical description of the work. The true specification should be in course of preparation all the time that the design was being elaborated by the architect. The general description of materials should govern the details of construction; and the work of preparing each should be simultaneous. The writing of a specification should be encouraged as part of a pupil's work during his articles, rather than the common course of education, which left that part of the art altogether to those who had passed through their period of apprenticeship. It seemed in some cases as if the architect-master of the present day followed the discipline of Pythagoras, who, it was said, expected a probation of five years from his pupils, and afterwards instructed them in the meaning of the enigmatical sayings in which he involved much of his doctrine.

Before writing a specification, its purpose should be fully considered. Much might be said, as regarded the order of treatment adopted, in favor of each of the following courses, the varied influence of which might frequently be traced: (1) Giving directions as to general principles, leaving the details to the common-sense and experience of those who have to carry them out; (2) following the order of the quantities, and, in fact, only supplying a running commentary upon them; (3) following the order of the execution of the work; and (4) following the order in which the work would be taken when measured up.

For the practice of specification-writing, perhaps the most important mental quality, after patience, was decision, and the author considered that before writing a specification the mind should be made up as to the meaning and application of the following terms, about which there were varying opinions. Uniformity in the use of words, and the avoidance of varied terms meaning the same thing, would also be of great assistance in making a specification intelligible. *Allow for*, was a term which would not be used: it belonged to a bill of quantities, and should show that the extent of the work was at the risk of the contractor. *Provide*, was intelligible, if applied to quantities of materials and labor; if applied to sums of money, a very clear interpretation clause was needed. *Supply*, if used in place of the usual "provide and fix," increased the clearness of the specification, and avoided some prolixity. *Proper*, before the introduction of work in imitation of mediæval structures, had an intelligible meaning, as applied to ledged doors, door-frames, etc.; it was now safer to fully describe what was intended. *Sufficient* was a legal term which required breaking down so as to convey the intention of the writer; to describe the intention might save much trouble. *Best* had ceased to have any definite meaning through the introduction of the terms

"Best Best," "Double Best," and the like. *Prime cost*, required explanation as to whether it was to be taken from the list-price without trade allowances, without also discount for cash, and also whether it had to be increased by establishment charges, carriage, or fixing. There were few occasions for the use of *To Fix*, which would not require some detail beyond the term. *Average* was a dangerous word, as it admitted of some of the work described being of less dimensions than were specified, and often nothing short of a measurement of the whole would clear up the doubts thrown on the execution of the work by foreman or clerk-of-works. *Sizes* should be explained as "out of," or "finished," and often at what time or in what position they were to be taken. Before *Attendance* was used, the amount of labor and responsibility thrown on the contractor should be clearly explained, and the Employers' Liability Act should be understood; the delay occasioned by other tradesmen should also be considered. The application of the term *Reinstate* to dilapidations was not considered by the author; to require a contractor to reinstate after accident, or after defects other than those of his own materials and labor, demanded a specially drawn specification; and it was sometimes better for the immediate use of the building to leave a small defect than to cut the structure to pieces in order to insert new material in construction, if power were retained by the architect to charge for renewal, when an opportunity allowed of the work being executed. *Local Requirements* should be mastered before they were referred to in a specification. *Watching and Lighting* should be explained, whether for the contractor's own work or for other tradesmen, whether for night work or for day only; the use of gas, firing and special lighting varied in each case, and no general clause was in all cases sufficient. *Search for Old Drains:* some knowledge of where the old drains were was necessary before drawing the specification. *Facilities* were to be afforded for inspection of work and for the introduction of other tradesmen for fittings during the progress of the contract, and it was only fair to define beforehand the extent to which this was to be carried, and the accommodation and responsibilities involved. If *Use of Scaffolding* was required for special purposes, or to be specially erected, attention should be drawn to the subject, as otherwise the ordinary words might carry only the use of scaffolding erected for the contractor's purposes, the extent of which varied greatly in different localities. The precise mode to be adopted in *Secret Fixing* should be clearly studied before writing the description. Before describing *Concrete* it was well to make up the mind whether absorbent or non-absorbent materials were to be used, whether burnt ballast was to be allowed or not, whether lime and cement might be mixed together, and whether the material should be shot into trenches from a height and left untouched under a penalty, or whether it was to be carefully laid without dropping, and then well punned. Would the architect approve of *Art Tiles* if winding and out-of-shape? or would he insist on having as good workmanship in their manufacture, without seconds, as he would have expected from Hollins or from Maw? *Rubbish* and *Débris* were both dangerous terms, but occasionally used; they were supposed to mean brickbats: waste-paper and night-soil should be specified out of them. If by *Asphalte*, tar and sand was meant, it should be stated; if superior material in two thicknesses, the maker's name should be clearly specified. For *Flooring*, the mind should be made up as to widths of boards, thicknesses, whether from the saw, the mill, or the plane, mode of fixing, quality, finish and bearing. The *Ironmongery*, the sets of hinges and the mastership should be decided on, and if P. C.'s were given they should be continued throughout. The tests required for *Cast and Wrought Iron* should be resolved on, and who was to pay for the testing made clear, whether the material passed the tests or not; whether Belgian iron was to be used or rejected should be decided on, and the cost of special rolls remembered. The capacity of the ordinary bricks should be studied for *Brick Facings;* every special mould required would delay the building so many days; whether all bricks were to be firsts, or any percentage of seconds allowed, should be clearly stated; and, as regards pointing, whether the kind described was likely to last if executed with the brickwork ought to be ascertained. London and Manchester interpret the term *Old English Bond* differently; which was to be used should be determined and made clear, and in any bond it should be decided whether the perpends were really to be kept, and the necessary position of closers remembered. With reference to the term *Trapped*, the gases of the present day got through obstacles which in old times had been intended to stop rats; the water-supply forced traps formerly approved; and he considered decision as to the form of a trap the strongest proof of professional influence. The mind should be made up as to what *Bonding* or *Cross-bonding* gave the better bond between stone and brick; it should be remembered that the average lengths on the two faces of a quoin stone multiplied together did not give the average section of the stone quoin; and in what cases jamb-stones should bond within the face of wood-frames ought to be stated. *Joggles:* doubt should be inadmissible as to whether the material mentioned was stone or cement, or as to the cases where the joggle ought not to be stopped. It should be decided whether *Scarfings* were to be described by a general rule or in detail; whether to be invariably bolted, and whether to be used at discretion. In *Fixing Leadwork* decision was necessary as to the use of bossed-seams or wooden-rolls and other details; in some cases a judicious reticence was safer than doubtful detail. As to *Drain Pipes*, the new patent joints should be tried before specified; the tests defined whether candle, water or peppermint; the sizes stated, and the writer of the specification should be sure as to the construction of the bottoms of the access chambers before binding the contractor as to the mode of execution, and also as to which side of a trap the fresh-air was intended to be introduced. When *Centring* was wished to be close-jointed it should be stated. If the edges of *Plate-Glass* were to be blacked it should be noted. *Custom of the Country* should be studied with reference to stone-facings, and the mode of pointing, slating and tiling of all sorts, with bedding and torching appropriate. The selection of stones and the appropriate treatment of each was too large a subject for the author's present purpose.

Among the many things likely to be forgotten might be mentioned: — The possible necessity of driving the planking of foundations; the application of a rule as to footings to piers and special cases; the liability of misinterpretation of the width of bed of a stone; the amount of labor carried by descriptions such as moulded, stopped, enriched, fitted, veneered and the like; the accesses to cisterns, taps and many other things; and the selection of sizes and shapes to suit the market for the several materials. The objects of a writer of specifications would be the best gained if he first of all placed himself in the position of his client, but with his own better knowledge as to judicious expenditure; in the position of the builder, but with an art knowledge which the builder might not have as to the materials available; and in the position of the clerk-of-works and foreman in having to obtain from the workmen intelligent labor.

DISCUSSION.

THE CHAIRMAN. — There are considerable differences of opinion between architects as to the way in which a specification should be treated. Very few would have dealt with it in the elaborate and very explicit manner which Mr. Rickman submits to you as the proper course. Some I know held that the general description of the qualities of the materials and the general description of workmanship, in rather vague terms, was sufficient. This was sometimes thought the best way of dealing with the specification, leaving the elaborate drawings, with annotations and descriptions thereon, to convey to the workmen the intentions of the architect. Thus the workmen would have their instructions always at hand and before them on the face of the drawings. Even in that case there would arise a considerable difficulty in conveying the exact meaning to the workmen, and difficulties from omissions continually and frequently arose. With the complete system which Mr. Rickman from his great experience advocates, this difficulty would be less likely to arise; but he certainly would place the architect in the position of being not only a many-sided, but a multiform man, to be thoroughly acquainted with the minute details of every trade in the elaborate manner which would be absolutely essential to carry out his scheme. Probably he would receive great assistance, not only from the specification draughtsman in his office, but also from that now apparently indispensible adjunct to all building works, the quantity-surveyor, whose careful revision of the specification during the process of taking out the quantities would supply many of those minute details which the architect had perhaps, in the first instance, overlooked; and in that respect the services of the quantity-surveyor no doubt would be very great indeed to the architect, as in his process of analysis he would necessarily detect essential matters of detail which the broader view taken by the architect might have led him to overlook. Of the essential qualifications of patience, decision and accuracy of language, which Mr. Rickman invokes as necessary for the architect, there can be no doubt whatever. Of all things the first qualification for the architect undoubtedly is patience, and after that decision becomes an essential quality, in which sometimes, perhaps, we are occasionally wanting. Unless an architect has cultivated the habit of precision of language to which I have before alluded — a precision which enables him to make himself intelligible to others in the sense in which he himself understands his words — that decision will be of little value: and it is unfortunately, I think, in the experience of most of us who have had to deal with litigation connected with building matters, that such litigation arises too frequently from what I may call the looseness of expression and want of precision — where the intentions are expressed by words which, when read from another point-of-view, and read many months afterwards in a reference or in a court of law, will bear an interpretation entirely different from that which the architect intended to place upon them. Mr. Rickman's observations upon "best" and upon "prime cost" are also of very great value. Some years ago, when the term "best" began no longer to mean anything but the "worst" it was the ordinary practice to introduce at the head of the specification a declaration to the effect that the word "best" throughout the specification is intended to be used in its natural sense, and that no such perversion as "best best" or its equivalents would be entertained. There is another point, and that is the very complicated question of the employment of other tradesmen than the contractor with whom the contract for the main building is placed, and the facilities to be provided for the execution of those works which are not paid for by the contractor, or which are ordered by the architect as a provisional amount, and for which the contractor pays simply on the order from the architect, and concerning which the heartburnings and the differences between the builder and the special tradesmen, and the architect and the client, are often exceedingly great, and sometimes lead to considerable litigation. In the present day

that practice of employing special tradesmen has become so general that the provisional amounts included in contracts come sometimes to one-third, and in some cases I have heard of to nearly one-half, of the amount of the contract; and it becomes exceedingly important that the manner in which those provisional amounts ought to be dealt with should be clearly expressed.

Mr. E. T. Hall, *Fellow.*— Mr. Chairman, I am sure we have all listened with the greatest pleasure to the very able paper which we should expect from a man of Mr. Rickman's great ability and experience. As time is short, I will not refer to the general outlines of the subject to which you have made reference, but rather endeavor to deal with details. I will, however, first draw attention to a feature which, I think, is of the greatest importance. The architect should draw his specification as though no technical person like the quantity-surveyor was to follow him, and if he sets himself to work on these lines he will have a much more perfect specification. It will, of course, demand patience, and also compel the architect to cultivate that quality on which you have laid stress, viz., decision, which is of so great importance. If an architect does not know what he is going to do in the execution of his building, it is impossible that his clerk-of-works or builder should know it. Therefore, if he will study the work, analyze the building from the bottom to the top, and describe what is to be done, he will give the quantity-surveyor, if one is to follow him, much less labor, and he will have the gratification of possessing a knowledge of his building which the clerk-of-the works and the foremen of the buildings do not possess. The advantage and comfort of this to him will be appreciated when he is superintending the erection of the works. Well, Sir, Mr. Rickman has drawn attention to the fact that a specification should describe what is "to be" and how "to do"; the suffering, if the specification is negligently drawn, will be on the part of the client, and that is generally followed by suffering on the part of the architect, who hears of it again. Mr. Rickman says the writing of specifications should be encouraged as part of a pupil's education. I think the writing of the specification, by which I understood him to mean the original writing of the specification, can hardly be part of the pupil's work. It requires the very greatest experience, I think, to write a specification, and it is eminently work for the head of the office; but the pupil learns how to do that by being set to copy specifications. With regard to loose expressions in specifications, for such phrases as "provide everything that is necessary," and that sort of thing, of course there can be no justification whatever. They lead always to trouble, and frequently to those arbitrations which we occasionally hear about. Sir, Mr. Rickman objected to the expression "allow for," as a term which is very indefinite, and I think his remark was that questions would arise in the builder's mind as to how sums were to be calculated under such a direction. There are certain items which I think may very reasonably come under that heading. For example, an architect in London is re-creating a building which is surrounded by old sheds. I think it is a sufficient description for him to say, "allow for the necessary shoring and boarding-in of adjacent building disturbed by removal of the party-wall." This is a perfectly intelligible description, and it is not a loose description either. Then, Sir, with regard to the trade terms to which attention has been drawn, "best best" and "double best." I should imagine, and I think I am not saying anything improper in suggesting, that these originated from the desire of merchants to assist the builder in — what shall I say? — evading the common-sense meaning of the word "best." We find that in trade phraseology "best" is not best, but may be a third-or-fourth-rate article, and that merchants are in the habit of using other terms to indicate something superior to "best." In plain English there can and ought to be nothing superior to "best." With regard to the vexed question of "prime cost": I hope before long the Institute may see its way to have a definition of prime cost, and so prevent the trouble and heartburnings which have arisen. Prime cost can have but one meaning. It means the first cost which the builder pays for the article specified. It can have no other legitimate meaning. To say prime cost refers to prices in any catalogue, with perhaps a discount of 70 or 80 per cent attached to it, is a perversion of terms. I think if it is clearly laid down that prime cost means nothing more nor less than the actual cost the builder pays out of his pocket for the article supplied, no injustice will be done to any man, and that which the architect means will then be clearly expressed and understood.

Then, Sir, with regard to architects' knowledge of the Employers' Liability Act, I do not quite follow Mr. Rickman that this is essential. That is one of the responsibilities which the builder, in making his estimate, should contemplate, of course; but it is not necessary that the architect should express in his specification the liabilities under which the builder, as an employer, comes by an Act of Parliament. As to the question of "re-instating," I quite agree with your views, and I should venture to press on this Institute a clause in the Conditions of Contract dealing with the subject. It may not always be desirable to remove a thing which may have wrongly got into a building, either by accident or design — we will say by accident. You have specified something — by accident something else has got in. Now, if you are doing your strict duty to your client, you can insist upon that being taken out; but possibly, in doing that, you may do almost an irreparable injury to the building. Under your contract, as you usually draw it, you must either take that out, in order to have the specification conformed to, or you must leave it in, in which case you cannot certify that the building is complete according to specification. It would be a very reasonable thing that in the conditions of contract provision should be made by which, where such a thing happens, the architect's discretion may be used, leaving him the power to allow the "wrong" thing to remain, and making such adequate reduction as will give his client, the building owner, the benefit of the difference in value between the article which was specified and that which was put in. Another question comes in with regard to the architect's decision. A very common expression is that the timber is to be absolutely without sap. For joists and things of that kind, it is almost impossible to get timber which is absolutely without sap. A trifling piece of sap the size of one's fingers on the edge of a joist is no fault whatever. It does not prejudice the building, and it is reasonable that such a thing should be passed. It is not reasonable that you should have a clause in your specification which says that no particle of sap will be permitted in the building if you intend that there shall be. It is not fair to the builders who compete. One who does know that you are reasonable in your interpretation of that will have an advantage over another who does not know it. I apprehend that "watching and lighting," under a contract, applies to the work which is included in that contract. In other words, if you say "provide watching for works," it applies, and can only apply, to the work which is the subject-matter of the contract. Therefore, I think, a general expression of "watching and lighting" will mean that you are to provide that which would light all the works by day or by night, or as you may specify. As to searching for old drains, if we knew where the old drains were, we should not use the expression "search for them." Take the case of an old building in London. If you are pulling down a building two centuries old, you may be positive you will discover an old cess-pool or some old drains under your floor. But the architect has not a staff of men to take up the floor or to excavate under the old vaults. Indeed, until the old building is pulled down, it might not be safe to work under the old foundations. I think, in such cases, you could not put anything more definite than simply "search." With regard to asphalt: the architect must, of course, specify what he wants. If he simply means tar and sand, he should use the expression. But I suppose, where British Lava Asphalt, or some of the more expensive asphalts are used, such as Claridge's or Seyssil, the architect would, as a matter-of-course, say so. Again, Mr. Rickman's description of stoneware pipes is an exhaustive one; but I think if, instead of that description, he had said the drain-pipes must be "perfection," he would have said all that was wanted, and he would be as likely to get them perfect. He describes "torching." I have found there is a considerable difference of opinion as to what torching means; torching, as understood in many countries — Sussex, for example — is simply pointing the inside of the tiles with mortar, just covering the joint; but the system of torching introduced in other places, and the one that I always personally adopt, is to render the whole underside of the tiles flush with the battens. Another thing which is of great importance is with regard to the specification of plumbing. Now, with regard to lead-piping, nothing is more common, and, at the same time, more objectionable, than the possibility of a pipe bursting in a house, or of some apparatus getting out of order; and the thing which is very often omitted from the specification is that provision shall be made inside your own premises, by means of a stop-cock for shutting off the water in the rising main, by which means you can at any time save a burst of your pipe by having no water to freeze in it. Another thing is to have a stop-cock where the supply-pipe leaves the cistern, by which means, if the apparatus at any particular spot is out of order, you can turn off the stop-cock of that branch and shut off the water in that branch, leaving all the rest of your sanitary appliances at work. Where that is neglected — and it is very commonly — if any one water-closet in the house gets out of order, everything else is thrown out of use. Sir, if I may be permitted to do so, I should like to conclude my remarks by moving a vote of thanks to Mr. Rickman for his very able and most instructive paper.

Prof. T. Roger Smith, *Fellow.*— Mr. Chairman, I think, perhaps, we may be in danger of going a little from the question of the nature of a specification to the question of the nature of things that should be specified. Our friend, Mr. Rickman, has tried to turn our thoughts to the somewhat difficult question of grasping exactly what a specification should be. He has told us some of the qualities that go to the making of it, but I think there are one or two others that might have been named, and upon which he did not lay much stress. He mentioned, and very properly, that a man should have patience — it is a work that wants a good deal of patience — and that he should have decision. I am inclined to think that it is equally important that he should have knowledge. Unless a man knows thoroughly what materials he can get; what things tradesmen are furnishing; what will be expensive or the reverse; what will be inefficient; what will answer his purpose; what will conform to the general scheme of the building, he is very much abroad indeed when he comes to write a specification. A man, when he is going to write a specification, will often find that he must furnish himself with knowledge, and in many cases he will find he then has to get up a good deal of information, especially if the specification travels at all out of the track which he has done before. One other quality, I think, is very essential, and that is system. A man should, as far as possible, in that, as in many other technical parts of his work, proceed uniformly on the same lines. I believe a valid, and in many respects a good, specification may be

written comparatively short, describing in general terms the work; but then it must not go into particulars in any part. On the other hand, if a man begins to go into particulars, he ought to go into particulars for every part of his specification. He should, therefore, lay down a system for himself, and adhere to it. One remarkable point struck me during the observations that have been made. Years ago, buildings were done by various tradesmen, and the object of the specification was evidently to give each tradesman a description of that part of the work which fell to him. The ordinary specification of the present day is done as though it was to be carried out by a series of different tradesmen, and the information requires to be fairly complete for each branch; but no doubt this practice took its origin from the ancient custom of the work being done in this manner. Later on, we got to the very convenient mode of having one contractor doing every class of work, and our specifications are made up in one volume, although they still contain a division into trades. But the curious thing is that now we are going back to the old plan. Our Chairman pointed out that specifications exist in which one-third, and even one-half, of the contract amount is introduced in the shape of money-provisions. Now that is simply employing different tradesmen. A money-provision is, in fact, a kind of allusion to a distinct specification, which may exist or may not exist, but which in many cases does exist, in the nature of a distinct estimate which has been previously obtained from some special tradesman; and it looks to me very much as if to a certain extent we were feeling we had gone a little too far, and we were harking back and getting more of our work done by separate estimates than a few years ago was the custom. The sole reason, or almost the sole reason, why it is desirable to include all this by the help of money-provisions under one contract and in one specification is to get the supervision and the control over them that the general contractor exercises. I am not at all sure that that is not sometimes bought too dear; that disputes and difficulties about how the money-provision is to be construed, and how it is to be paid, and the troubles which we all know are apt to arise, would not in many cases be almost better avoided by the architect making a series of distinct contracts for his employer with many of the special tradesmen, and simply making a contract with the general contractor that, in respect of their work, he is to provide the necessary attendance and the necessary scaffolding. At any rate, it strikes me it is a point which is worth consideration. When you come to look at so large a portion of the work being done practically without description, as is the case where these money-provisions abound, the question arises very much whether we require the descriptions of which a specification consists for working purposes or for some other purpose; and the idea suggests itself that a specification is required as the basis of the contract, and not that it is necessarily needed as a description of the work. If you are going to carry out work without a contract — I have had an opportunity two or three times of carrying out work without a contract — practically you find that whatever specification there is becomes almost useless. The drawings and the personal directions practically suffice; and if there was no question of contract, if there was no question of having a definite sum wanted, to be first arrived at and then adhered to, I question very much whether, if a man makes good drawings, it would be necessary for him to make anything more than a general specification. Perhaps Mr. Rickman will give us his view on that. But, if this be so, it shows that we ought to have the question of the contract in our minds in writing the specification from beginning to end; that it ought to be such a document as you can call upon the contractor to carry out in every description; and, if so, the next thing which follows is that the nearer it runs to the quantities the better, because in all our work the quantities are practically the foundation of the contract, and the document upon which the contractor forms the idea of what he has got to provide and what he has got to do. If, then, a specification is really wanted as a basis of contract more than anything else, then I am inclined to think that the more closely he follows the order and terminology of the description upon which the quantities are based, the more likely is it to enable the architect to carry his contract through without serious extras. If so, that seems to show that those gentlemen who get the assistance of the quantity-surveyor, at any rate, to expand their specifications are not altogether unwise.

MR. WILLIAM WHITE, F. S. A., *Fellow.* — Mr. Chairman, in former days it was almost the universal practice in the country for contracts to be taken by different tradesmen together, simply because the locality was such as not to justify at that time the existence of a general contractor. I have had contracts carried out by separate contractors with dispute and without dispute; but I do not know that I have ever had them as pleasantly carried out as with a single contractor. As to the question of provisional sums for certain works, which are intended to be taken out of the contractor's hands, or to be executed independently of him, they require to be very carefully understood and described in the specification to show the understanding which is to be made between the builder and the men supplying such work. Some contractors insist, and very rightly insist, upon having an understanding beforehand as to what that recognition should be, and it is essential, in the writing of a specification at any rate, that it should be clearly laid down. That covers the question of prime cost, but it does not cover the manner in which prime cost is to be defined. Is prime cost to be that which the builder pays without a commission or with a commission — the actual money which he pays, or the published price at which the thing is to be had? I have known builders take not only the one, but add the other on to it. I have letters from which I could show the fact of a gentleman selecting his grates, and the builder getting his 10 per cent out of the stove-maker, and then still attempting to charge his further 10 or 15 per cent upon the work. That having been done, it certainly shows it can, and will be done, unless the matter is properly understood. But, in drawing a specification, as Professor Roger Smith has said, system and knowledge are necessarily the two great items, and I think the system which ought to be followed is that of simply describing the work — the work to be so-and-so — and to include in all those items the manner in which the work is to be done, as nearly as possible, and not to insert that the contractors shall do this, that, and the other. I say the proper place for describing his duties is in the contract — and if there be not a contract there ought to be one; but if a contract is not wanted, the specification answers every purpose as to the description. Another thing in writing a specification is to make all necessary local inquiries as to local ways of doing work, as well as as to local material. The writing of the specification ought to be done immediately upon or *pari passu* with the preparation of the drawings, and I unhesitatingly say that the architect ought to draw the specification distinctly and clearly for the surveyor, as well as for the contractor. The surveyor ought not to draw the specification for the architect. It may be the duty of a surveyor to detect and point out any little omissions which may have taken place in the descriptions of the specification; it becomes his privilege and his duty to do this small kindness for the architect.

MR. LACY W. RIDGE, *Fellow.* — Mr. Chairman, the Practice Standing Committee have now before them the subjects of general provisions and specifications, and these questions with regard to prime cost and so on have been to a certain extent considered, and will be considered more by that Committee. That particular subject of prime cost is certainly a difficult one, because if you tell a builder that the thing is to be prime cost, and that he is to add his profit to it, when you send in the account that the tradesman is to be paid, he wants a discount from the tradesman for paying him then and there: so that it is a very difficult subject indeed to get quite to the bottom of, because a man may very fairly say: "Yes, I was to provide so much, and I was to add in my estimate so much for my profit on that work, but I shall take my own time when I pay for this work." Where other tradesmen are employed — and it is a very great advantage in these days employing men who devote their time especially to one particular of a building, in such important things as fireproof floors or lifts, and things which require a great deal of mechanism and special experience — it is a very great advantage to bring in men who devote their whole time to that, to work on a building. Therefore, I think in drawing our general provisions, and in the provisions which we make — I think we should be prepared to provide for that. I do not think Mr. Hall's objection holds right with regard to watching. There is no reason why a contractor should only watch his own works; if it is well understood in the specification that he is to watch all works, he takes that just the same as the supply of water, and everything which is general to the building. Then with regard to searching for, and provision to search for, drains — a description to search for drains. If the architect cannot search for drains before he draws his contract, how can the builder know what allowance he is to make for searching? Therefore such a thing as searching for drains should invariably be followed by a provision for money. Your client may or may not like it, but it is the only fair way of making a contract. If the thing is so uncertain that you cannot define it, surely you are not to call upon another man to define that which you have failed to do, and put down a sum for it — in fact, to throw his hat at it. You — or rather your client — ought to take the risk by putting down such a sum. I can understand Professor Roger Smith's remarks about wanting the specification in general terms when you are not making a contract; but where the object to be attained is to make a contract, I cannot understand how a specification can be anything else than full. I feel a little difficulty in what Professor Smith says with regard to writing a specification by trades. I think we must all have found out in these days, with regard to sanitary matters, that there are things which used to belong undoubtedly to the plumber, which have become, to a great extent, earthenware and stoneware; and to put one part of the sanitation at one end of the specification and the rest at the other end of the specification is rather awkward. I have been thinking almost of heading a trade "Sanitation," so that the work of one's closets and pipes should be all together. I agree most heartily with Professor Smith's remarks. It comes home to one as one gets older that knowledge is, after all, about as important a quality as any that you can bring to bear on such a subject as a specification — which is not as difficult, I may venture to say, to younger men than myself, as it once was — and I think if that is the case it is really owing to that accession of knowledge which comes with increasing years and experience. Then there is a point on which one might feel inclined to be a little eloquent, if eloquence was not out of place on such an occasion, and if I had the supply of material to lay on — and that is with regard to the specification following the quantities, and the quantities following the specification. Now, honestly, is it not the duty of the architect to say what he means and to put it in? Has it anything to do with the quantity-surveyor at all? Then there is a very practical harm which arises

out of allowing the quantity-surveyor to write your specification, and that is, you do not know what is in your contract.

Mr. H. Lovegrove, *Associate.*—Mr. Vice-President and Gentlemen, I rise with very great pleasure to support the vote of thanks to Mr. Rickman for his able paper, because I consider him to be the head of that branch of the profession to which I have given a considerable part of my time. So fully has every item been dealt with that we have little to do more than to touch briefly upon some of the leading points, taking care before doing so to express great admiration for the concise form in which Mr. Rickman puts his papers together. I can only compare him, from an architectural point-of-view, to what the late Lord Chief Justice Cockburn was in a legal way, and Canon Liddon in a clerical way. If a written specification is supplied by the architect to the surveyor, the surveyor has a very great inducement to follow the order of his quantities, which is a great advantage to him, as it enables him to compare the specification with the bills, and make them check each other; but by so doing the specification is made into a document which does not agree with the order in which the work is executed. Of the several ways, the third way of placing the matter in the specification in order of execution is certainly best, and the architect should then consider in writing the building in its various stages, and carefully describe each operation as it passes before his mental vision. I agree with Mr. Rickman that "allow for" should not appear in the specification. It is clearly a phrase intended for the bill of quantities. "Provide" should always have the subsequent words very clearly explained. The word "provide" to my mind should rarely be used in the quantities. In referring to materials, it is much better to give the number, weight, or quantity, and then recommend the word "provisional" after. I have known the word "provide" misunderstood by the contractor. It is not quite certain that the word "supply" would always meet the case if used in lieu of "provide and fix." Some cantankerous contractors would be likely to assume that to supply the thing did not mean fixing it. I agree with Mr. Rickman that the word "fix" alone does not adequately represent what the architect means. Some other words are necessary. With our present range of design and work we should certainly be careful to specify exactly how these things are to be done. The *prime cost* question has been touched upon by a great number of speakers. It seems to me to be the one thing in the specification on which the architect and the builder can never agree when the settlement comes—and I think, as a former speaker stated, the builder wants to get his profit from the seller, and then to put another profit on afterwards. I think it should be distinctly laid down that the prime cost means the money actually paid to the merchant by the builder, and then his profit of 10 per cent or 15 per cent should be added to that amount. Local requirements should certainly be understood and defined care be taken to instruct the contractors to deposit their plans as early as possible—in fact, before they commence the work. That gets over a great many difficulties; it gets over the difficulty with the vestry or the district board-of-works with regard to drains, and it helps to solve some points of area lights, building line, etc., and difficulties are then smoothed over by the earlier application to that official. In the case of architectural drawings for any large work there is something to show, but with twenty or thirty or more pages of foolscap there is little to show, and the more or less neatly written pages cannot compare with several sheets of elaborately tinted drawings.

Mr. W. H. Atkin-Berry, *Associate.*—I have been very glad indeed, Sir, to hear to-night this particular question of prime cost brought so prominently forward, because, as a young architect, I have experienced the greatest difficulty and embarrassment in dealing with this subject, and I think many others have experienced the same. I am glad to hear it so definitely expressed to-night that the specification is still to be regarded as the work of the architect, and not of the surveyor, for I, in my small experience, have had the opportunity of noticing that it has become the custom, amongst a great many, to look upon it as work that can be delegated to the surveyor. The architect should have as much control over his specification as he has over his drawings; and I think he should not let the surveyor write them, any more than he should let his clerk design his drawings for him. I would just like to ask Mr. Rickman in his reply to define a little what he meant by his observations on the word "trapped."

Professor Aitchison, A. R. A., *Member of Council.*—Mr. Chairman and Gentlemen, this is a subject in which everybody who has to practise architecture must take a deep interest, and I am sure we are all extremely obliged to Mr. Rickman for pointing out many things that we are perhaps too apt to overlook in our specifications. There are two or three considerations with regard to specifications that perhaps do not even come within their scope, but which really affect them more than anything else. Most of us who know our business could write a very good specification if we had time, quiet, and the drawings before us; but it frequently happens that we are pressed for time, and worried as well, and are urged by our client to get the work out for tender, and then the specification is done in a perfunctory way. Architects, too, are very insufficiently paid for doing it properly. There are many great advantages in employing a contractor; there is but one set of plant, and one responsible head: but if you want first-rate work done you would go to the master-tradesmen of each branch, as he takes a pride in the excellence of his work. The principal cause of the difficulties we have in the interpretation of a specification is that, though the architect may be honest and know what he means, and the builder also, yet it by no means follows that the architect has so expressed himself that the builder perfectly apprehends what he wants, particularly if the work in question is out of the common way. And how it is to be avoided unless we have more time to devote to it, and an independent interpreter before the tender is made, I do not know. A great deal has been said about prime cost, so I may say something on the subject both for the architect and the builder. The specification says: "such an article is to cost so much, prime cost, the builder's percentage to be added." Generally, the article has to be sent for—and, consequently, the time or the cartage, or both, are very properly added to the cost—but, to prevent imposition, the surveyor can always insist on seeing the receipt for what the builder absolutely paid, and it is then to be considered whether he is entitled to additional payment. I always set my face against the discount and the profit as well; this common practice is very unfair and very troublesome when the architect desires some particular article to be used. There are only two other subjects on which I want to say a word; one is on the subject of moulded bricks. I strongly advise all architects who have anything to do with moulded bricks to insist on a larger percentage than the ordinary one for himself, and not to bind the builder to time, because it may be impossible to carry out the latter condition—the bricks cannot be moulded till the contract is let, and may turn out badly in the burning, and the architect will find he has endless extra trouble and annoyance, and to give full-sized details of every angle brick. I do not know whether "proper" has gone out of fashion, but it appears to me that, if you described it, that you were justified in telling the builder to supply it. Almost the only use of it is for solid door and window frames; and, as far as I understand it, a "proper door or window frame" is one which is wrought, rabbeted, and beaded; but if by the word "proper" you mean to have it chamfered or moulded, or anything of that kind, then you are giving a wrong description, and the builder may justly claim for the extra work.

Mr. Woodward, *Associate.*—I think the Institute is to be congratulated upon having had brought before it a paper on so important a matter, and I venture to say that there is not a man in the profession who is better able to write upon this subject than Mr. Rickman. The theme which harmoniously runs through Mr. Rickman's paper is this: that it is not well, it is not proper, that the writer of the specification should depute to others the elucidation of that which, by a little extra trouble, he could himself elucidate. I think the importance of the specification is shown by the use to which it is constantly put from the beginning to the end of the building by the builder and by the building foreman. I think a walk through a building shows to the practical eye not only the design of the architect—the realization of the drawings—but those various points to which Mr. Rickman has so well referred—the realization of the specification. I think a specification should mean this: that, supposing the architect died, or should be compelled to be absent from the building during the whole time of its erection, the specification, taken with the drawings, should be sufficient to secure the entire carrying out of the work in every detail as he would wish it, without any further conference whatever. To this end it is obvious that the specification must be written with considerable detail, for the architect's own mind must be implanted into it as much as into the drawings. With regard to the use of the word "best," Mr. Rickman says that, for reasons which he properly adduces, he does not now employ it; but in specifications I use the word in this way: the word "best" is intended to mean that better cannot be obtained; that enables the architect, when the builder supplies inferior material, to say, "I will get you better," and thus conform to the terms of the specification. With regard to the provision of scaffold for other tradesmen by the contractor, that is by no means an unimportant point. The making good after other trades often entails upon the contractor serious and heavy loss. I must express my deep regret that Prof. Roger Smith has, I think unwittingly, made observations which may lead the student to undervalue the importance of the specification. As I understand his observations, they point to this: that the architect need not devote so much time to the specification as certainly I and others in this room have been in the habit of believing it his duty to do. My belief is that, if any such doctrine is put forward, the young architect, with every desire to avoid what he now thinks is drudgery, will take advantage of Professor Smith's observations, to the disadvantage of his client, to the disadvantage of his building, and certainly to his own detriment as an architect.

The Chairman.—Gentlemen, I tender on your behalf to Mr. Rickman a cordial vote of thanks for the paper that he has read to us this evening. It has been a great satisfaction to me, Mr. Rickman, to occupy this chair this evening; and I hope the manner in which the paper has been received, and the way in which it has been discussed fully and temperately, have given equal gratification to you.

Mr. T. M. Rickman, F. S. A., *Associate.*—Mr. Chairman and Gentlemen, I feel greatly the kind manner in which the Institute has received my efforts in behalf of the Literature Committee, and also, sir, the kindly manner in which you have expressed it. Some speakers have suggested that "best" ought to be sufficient; but many architects do not mean to have the best things. You do not mean to have the best class of materials for warehouses; you do not mean to have the best framing for attic doors; you do not mean

to have the best glass in your rooms generally. "Best" has a curiously technical description in glass — it means you have, perhaps, selected it out five times. You do not generally want to have better glass than seconds. As regards the general question of provisions, I have not gone into it on this occasion. I did not feel it was possible to compress what must necessarily be said on that subject into a paragraph that I could afford in a paper upon specifications. I understand that the subject is to be discussed at the Builders' Institute in the course of a few weeks, and it will be very well indeed if architects are able to present themselves at that discussion, and to take part in it, in order that they may understand what builders' views are with reference to the large proportion of provisional sums which, as our Chairman has said, are now frequently brought into the contract. The one real difficulty in dealing with provisional sums is the payment through the contractor. It is quite true that, a generation or two ago, in each case in erecting a large building, separate tradesmen were employed, and in the earlier part of this century there grew up certain large contractors who did everything themselves, who understood all the trades; but at the present time we are, by way of provisional sums, re-introducing a separate contracting-system. I suppose that what is really necessary in order to clear up these difficulties, which are difficulties that the surveyors and the builders are feeling at the same time, is that we, as architects, should have a better understanding with our clients; that our clients should better understand what the position of the contract is — what can be contracted for, and what items it is far better should be placed at a price already settled in the hands of other tradesmen. If the client understands really what the position of these matters is, he will very soon find that it is far better for him to pay for these things direct, and to pay for, among other such things, the surveyor's quantities direct, than it is for these sums to pass through the hands of the contractor, who will necessarily pass the plane over them. I do not think a pupil, before he has had five years in an office, is much capable of writing a specification that would be of service; but I do think that if the notes for the specification were in the hands of the men who make out the drawings in the office, and of the pupils among them, the pupils would understand far better the purpose for which the drawings are made out, and the drawings themselves would be far better. It is not necessary that these notes should be elaborate, but an architect, if he has made up his mind on any one point, should put it onto a scrap of paper, and that should be in the hands of the draughtsmen to assist them. Prof. Roger Smith says that I have not recommended knowledge. I think the first necessity of the mind which I propounded in my paper was one which I put before patience and before decision; namely, curiosity. I mean by curiosity that interested desire to find out how to do things which will enable you to get the knowledge on specific points necessary for you to write a specification. I have endeavored to avoid giving any instances in my paper (the only instance that I have given has been misapprehended), and, therefore, I had not stated the circumstance which induced me to mention searching for drains. One speaker alluded to the word "supply" as not being necessarily understood as providing and fixing. I am quite aware of that, and, therefore, I think one of the first interpretation clauses in a specification should be that the word "supply" carries the meaning of the ordinary words "provide and fix." I have not made myself quite clear on the subject of "trapped," because it is the height of the soil-pipes and the weight of the water which is now passed through them through the modern water-closet and other appliances which draws the air out of the traps. A specification must be written for separate trades, because the workmen themselves are still artificers in separate trades. They may be all employed by one contractor, but they invariably have foremen of their own, and it is the foremen of the separate trades who most carefully read the specification. Though the architect has to write the specification in trades, he must write it as a whole. I have endeavored, in going through the terms which I find are the most difficult of interpretation, not to give my own opinion in any way, and, if my paper is of any service, it will be by calling the attention of those who are learning to write a specification to the points that they have to attend to.

BUILDING LAW.

THE STANDARD CONTRACT.

PROVIDENCE, R. I., March 19, 1889.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — In the Law Department of the *American Architect* for March 16, 1889, I find the following remarks in regard to Mr. Hatfield's quotation from Professor Parson's "*Laws of Business*":

"Our correspondent invokes the authority of Professor Parsons in support of the architect's unlimited agency, and quotes a provision from a form said to be contained in his "*Laws of Business*," making the architect the agent of the owner for the purpose of superintending the work. . . . Moreover, the book referred to contains no such contract, or any form of building contract whatever. Perhaps Mr. Hatfield's friend had some English book in mind."

I am the friend to whom Mr. Hatfield refers, and, notwithstanding the denial of your legal authority that it contains "no such contract, or any form of building contract," I will say that in "*Laws of Business for all the States of the Union, with Forms and Directions for all Transactions*," by Theophilus Parsons, LL.D., etc., etc., Hartford, Conn., published by S. S. Scranton & Co.; Philadelphia, Pa.: Parmelee & Co.; San Francisco, Cal.: H. H. Bancroft &Co., 1869, on page 74, Form 23, in "A Full and Minute Building Contract," are found the words: "And under the superintendence and direction of ——, hereby appointed *superintendent* and *agent* of the party of the second part." These words were quoted substantially by Mr. Hatfield from information furnished by me.

I wish to add that Professor Parsons, in the statement preceding Form 23, says: "I now give a very full and minute form, prepared by a skilful lawyer, and in wide use." Yours truly,

ALFRED STONE.

[IN reply to the above communication, we can only say that the edition of Parsons's "*Laws of Business*" published in 1869 by Little & Brown, Boston, contains no form of building contract. In the edition of 1879, however, published by S. S. Scranton & Co., of Hartford, Conn., there is a form, No. 23, on page 95. This form contains the clause to which our correspondent refers, but, as pointed out in our issue of March 16, the agency of the architect does not include the authority to order extras. If our correspondent had read a little farther into this form of contract, he would have run across the following:

"It being expressly understood that no extra work of any kind shall be performed, or extra materials furnished, by the said party of the first part (the contractor) unless authorized by the said party of the second part (the owner) and the superintendents (the architect) in writing," etc.

It is indeed common in building contracts to make the architect the owner's agent in respect to superintending the work. This practice is not particularly objectionable; considerable experience in trying building cases has satisfied us, however, that such a clause is unnecessary for the owner's protection, and renders it more difficult for him to hold the contractor to a strict compliance with the terms of the contract. But whatever authority may be given to the architect to represent the owner as his agent in the work of superintendence *would not include the right to order extras;* and it will be observed that the "skilful lawyer" who prepared the form in "*Parsons*" was extremely careful that no such authority should be given by implication even, and went to the length of inserting the express provision quoted above that no extras should be ordered without the consent of the owner in writing. We recommend a careful attention to this and the other provisions of the "skilful lawyer's" form before adopting the "standard form."

The main objection to the "standard form," we again repeat, is the attempt to give the architect unrestricted and irrevocable power to order extras. We do not believe that any lawyer in the United States, skilful or unskilful, can be found to sanction such a practice. — ED.]

SOCIETIES.

T-SQUARE CLUB.

AT the regular meeting of the T-Square Club held on the 6th inst., at Philadelphia, Pa., action was taken upon the death of Mr. J. Howard Sprunance, after which drawings submitted by members (at Mr. Wilson Eyre's studio) for hardware on club-house door drawn three-fourth inch to the foot, and full-size details were criticised with the following result: First mentioned, Louis Hickman; second, Arthur Truscott; third, Frank A. Hays. The meeting concluded with a collation.

COMMUNICATIONS.

PAYMENT FOR UNEXECUTED PLANS.

March 25, 1889.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Can you refer me to any adjudicated cases touching upon an architect's right to be paid for plans and specifications for buildings not carried out. I have found it necessary to sue for pay for such services and beg you to send me references at once.

Very truly yours, VITRUVIUS.

[THERE is no question about the right of an architect to payment for plans and specifications for buildings not carried out, provided he was asked to make the plans and specifications, and did not agree not to ask for any pay unless they were carried into execution. If he can satisfy the jury on these points, it is difficult to see how he can be prevented from obtaining judgment for a proper compensation for his work. What the proper compensation will be, depends again on what the jury is satisfied that the agreement was. If he had been engaged for full professional service, he is entitled to damages for being prevented from completing his service, in addition to payment for what he actually did. Messrs. Fuller & Wheeler of Albany, had a case of this kind decided in their favor by a referee, which was described in this journal some time ago. On the general question, perhaps, Lord *vs.* Nourry and Kutts *vs.* Pelby, 20 Pick. 65, may be of some use, but the matter really rests upon what the jury, or the referee, may find that the contract was. If they find that the defendant, either expressly or by implication, asked the plaintiff to do work for him, which the plaintiff did, in a proper and skilful manner, expecting to be paid, and without agreeing to any conditional terms of payment, it will be very strange if they do not award him a fair compensation. As to what constitutes a fair compensation under the circumstances, the schedule of the American Institute of Architects, which regards three and one-half per cent

on the proposed cost as the proper fee for plans and specifications for buildings of the value of not less than ten thousand dollars, which are not carried out, may perhaps be admitted as evidence. If not, individual architects can be called upon to testify on that point. — Eds. American Architect.]

NOTES & CLIPPINGS

A New French Fine Arts Commission. — One of the last alterations effected by M. Lockroy as Minister of Public Instruction and Fine Arts was in connection with the Department of Fine Arts. For many years all business between the State and artists was conducted by the officials of the Department. In 1884 an independent committee was appointed, but its powers were limited. M. Lockroy proposed, and the President has approved, an enlargement of the committee and an increase of its responsibility. First, there is a general commission consisting of the chief officers of the Department of Fine Arts, several senators, deputies, amateurs and artists. Among the last are MM. Bailly, Garnier and Dutertre, architects; M. Puvis de Chavannes, painter; MM. Chapu and Dalou, sculptors; and MM. Chaplain and Bracquemont, engravers. The commission will examine all projects of decoration of public buildings, will give advice on competitions, and point out works in exhibitions which are worthy to be purchased by the State. By the new arrangement it is anticipated that more unity will be obtained than was possible when commissions were given without any thought of other works. In order that delays may not arise through the difficulty of bringing so many members together, a sub-commission with fewer representatives has been nominated, before whom questions will be brought in the first place. It is expected that artists will be more in accord with a commission so constituted than with one made up of officials, whose business, everywhere, is to create difficulties. — *The Architect.*

Castings from Bronze. — It is said that Sir Richard Wallace has refused the offer of some thousands of pounds for permission to take a cast of the shield by Benvenuto Cellini, which is one of the treasures of the gallery in Manchester Square. Naturally there is apprehension that some injury to the shield might arise in the course of the process. Sir Richard Wallace's views will be confirmed when he reads how the architect who has charge of the column which marks the site of the Bastille has declined to grant permission for a cast to be made from the bronze lion which is sculptured on the west face of the pedestal. It is one of Barye's works, and the cast is required to complete the collection of French sculpture produced during the century which is to form a part of the international exhibition. The architect says that part of the plaster might remain and fill up some of the numerous recesses of the tooling, which would lose their character. He is also uncertain about the chemical action of the plaster, which might remove the patina, or in any case affect the color of the bronze. There is some disappointment at the resolution, which is a condemnation of the action of other architects and conservators who have raised no difficulties about castings. It would be bad news for many museums if the architect's opinion prevailed. That moulding has not become more dangerous to bronze in Paris than elsewhere is evident from the experience of the process lately in the Louvre, casts having been taken of many delicate bronze statuettes without any injury to the originals. A special exhibition of Barye's works, for the purpose of obtaining money to erect a statue of the sculptor will be opened in Paris on May 1 in the galleries attached to the Ecole des Beaux-Arts. — *The Architect.*

The Efflorescence on Brickwork. — The unsightly efflorescence on walls, due to what is termed "saltpetring," and noticed generally in dry weather, is due to several causes. Perhaps the only satisfactory explanation is that the newly-built brick wall is exposed to dampness, or dampness in coöperation with something in the bricks themselves. It is stated that bricks made from clay containing iron pyrites are subject to this efflorescence; that the sulphur from the fuel converts the lime or magnesia into sulphates, and that whenever the bricks dry the sulphates evaporate, leaving behind the crystalline appearance or efflorescence. The evil is, therefore, due to the chemical action that takes place between the sulphur in the fuel and the magnesia in the clay. The mischievous part of the efflorescence is that it destroys the pointing, and injures the work generally. Remedies are few. The chief object is to stop up the pores with some solution of fatty matter, quicklime and cement powder; but the main thing is to avoid the particular clay and coal fires employed to make and burn the bricks, and to mix the mortar with animal fat. — *Building News.*

Old Monastery Doors. — Derbyshire possesses what are described as the finest pair of old monastic doors in England. The great doors, wicket doorways and spy-hole, of the Carthusian priory of Beauvale, Notts, have long lain neglected at Melbourne Hall, being brought there when the old gate-house was pulled down in the last century. The present tenant of the hall, Mr. Fane, has placed them under cover. They are in fair condition, the oak bolted through with great clout nails and are carved in panels, with intersecting tracery above The date seems to be about 1350–1380. Mr. Fane has lately brought to light among the Cole papers the original voluminous charter, with great seal attached, granting the lands of the dissolved priory of Beauvale. — *Exchange.*

The Output of Roofing-Slate. — The following is a statement of the shipments of roofing-slates from different points in the country during the year 1888: Bangor and Pen. Argyle, Penn., 378,800 squares; Slatington Section, Penn., 114,000; Chapman's, Penn., 24,500; Peach Bottom, Penn., 23,000; Maine, 38,000; Vermont and New York, 159,000; Virginia, 19,000; making a total of 656,300 squares, as against 545,000 squares in 1887. — *Bangor Courier.*

TRADE SURVEYS

The characteristic of the general markets of the country is dulness. The depression was not anticipated. Coming unexpectedly as it did, business interests look for its sudden disappearance. Wages have been reduced 5 to 15 per cent in a number of industries. A few thousand mechanics have been disemployed. A number of schemes that were to have been pushed this month are delayed, and promoters are disposed to move with unusual caution. What is the actual strength of the trade situation is asked. Is production excessive? Are prices declining? Are opportunities for investment dying out? Has enterprise less chance this year than last? Are our finances, as a nation, in good condition? Is mortgage indebtedness increasing? Are railroad managers approaching harmony? These and a dozen other queries arise among practical business men, and most of them remain unanswered. There is but little in the stock-jobbing reports to enlighten business enterprise. Commercial men of long experience, arguing from the past, cling to the opinion that the year's business will round up grandly. The fact standing out boldly in the business world is that productive capacity has been very greatly increased in all departments of activity. Can this increased capacity be profitably employed is what the business world is now asking? In iron and steel prices are still weak. So also in coal, though a bituminous operators' compact has been effected to preserve prices 20 to 30 cents above competitive limits. In some Western States miners' wages will be reduced 12 per cent. In some iron mills wages are down 10 per cent. At the Altoona railroad-shops 4,000 men have been reduced to nine hours a day, with a half Saturday holiday, and no reduction in pay. The eight-hour agitation is progressing, and employers are observing it with interest. Railroad bridge-work is coming in freely. Three large bridge-works are now turning out material for forty bridges on the Chesapeake & Ohio Road. The Norfolk and Western Company are also large buyers of iron for bridges. Three bridges are to be built near Pittsburgh. The expanding bridge-building demand is stimulating enterprise in the West to erect large structural-iron establishments. American locomotive engines are in demand in Central and South America; and a leading builder stated this week that American work in those localities would be doubled within a few months. Within a short time twenty-one engines have been shipped there. Car-work comes in slowly, but from excellent authorities it is learned that much work will be placed among builders during the next sixty days. Railroad managers are not inclined to contract for work hastily. Despite all the complaints over dragging railroad-building enterprise, much new work has been projected since March 1. A road is to be built to parallel the Duluth and Winnipeg, now building. Ore roads in the Lake Superior region are to be hurried through. Several lumber roads will soon be heard of. A ninety-five-mile road is to connect Baton Rouge and the Mississippi River. A road is to be built from New Orleans to the Pacific Coast *via* Dallas. Within thirty days forty roads have been projected; most of them needed to satisfy existing traffic requirements. Among the sensational foreign rumors is one to the effect that the English colleries in Cumberland, Yorkshire, Lancashire, Northumberland and Durham are to be purchased by a syndicate representing five hundred million dollars. Grand railway schemes are coming to the front in Mexico, pushed by foreign capital and assisted by American enterprise.

The Cuban iron-ore developments are very encouraging to the Americans that are extending their control of mineral properties in that island. Natural-gas is to be piped to Columbus, Ohio, from a rich gas territory twenty-five miles distant. Wells have been bored in Kentucky, developing large gas supplies, and schemes to pipe gas are up for consideration. Western mining interests are seeking legislative coöperation to erect dams across mountain gorges to accumulate such a supply of water as will aid mining and smelting operations in dry weather. This is an important move, and in some respects is more important than even irrigation. A deep exploration-shaft is to be sunk at Leadville by interested parties to determine the existence of valuable minerals at lower depths. One of the finest ore-beds on the continent have been found 225 miles north of Denver. It is said to average 67 to 72 per cent metallic iron. They are low in ordinary impurities. The ore can be mined at fifty cents, and delivered at Denver at $2. Coal and iron companies are springing up in the South. Competitive influences are equalizing economic advantages, and industries are slipping from one place to another every week. The week's reports from architects and builders strengthen previous statements as to the probable volume of work. While manufacturing capacity has been greatly increased, manufacturers are preparing to increase it farther. Textile manufacturers do not hold back. An authority on hosiery production states that as many as twenty factories will be erected this year. A manufacturer of shoe-making machinery states that orders for machinery are numerous. The wood-working machinery-makers will endeavor to form a national combination to fix prices. The numerous small manufacturing combinations are all renewing their mutual vows of constancy for the coming season. Building material is low, but lumber may not drop any on account of the short log-cut. Western cities are inclined to buy brick for paving purposes. Lincoln, Neb., will have seven miles of brick-paved streets. At Des Moines, a mile and one-half have been laid Glass of all kinds will be in abundant supply. All the factories are working. Real estate speculation is more active, especially in large cities, and a great deal of property has been purchased this winter by parties who recognize the upward tendency in city real estate. As facilities for rapid transit improve, land seems to appreciate in cities for manufacturing purposes. Extensive purchases have been made for building requirements in New England towns and in the Middle States. Shop-building enterprise is most active. The building trades threaten no disturbance generally this year. Wages are acceptable, but a movement for an eight-hour day is being agitated in nearly all the larger cities. Foreign workmen are taking more interest in this phase of agitation than Americans. The banks are exercising greater caution in extending loans, especially to new customers and outside parties. The surplus reserve in New York is near eight million dollars. Bankers have confidence in the general solvency of the country, but there is a feeling that greater care must be exerted in the future in the extension of credit. There is considerable extended manufacturing paper being carried, and bankers are anticipating a greater demand as the season progresses on their resources. Business will probably swell to larger proportions within the next week or two, but manufacturers, jobbers, retailers, and all interests feel the necessity of keeping within prescribed limits. It is not over-production that is feared, as the trade combinations have shown their ability to deal with that phase of the question, but a decreased consuming capacity. But this is a danger that need not be defined until it approaches closer than it is at present.

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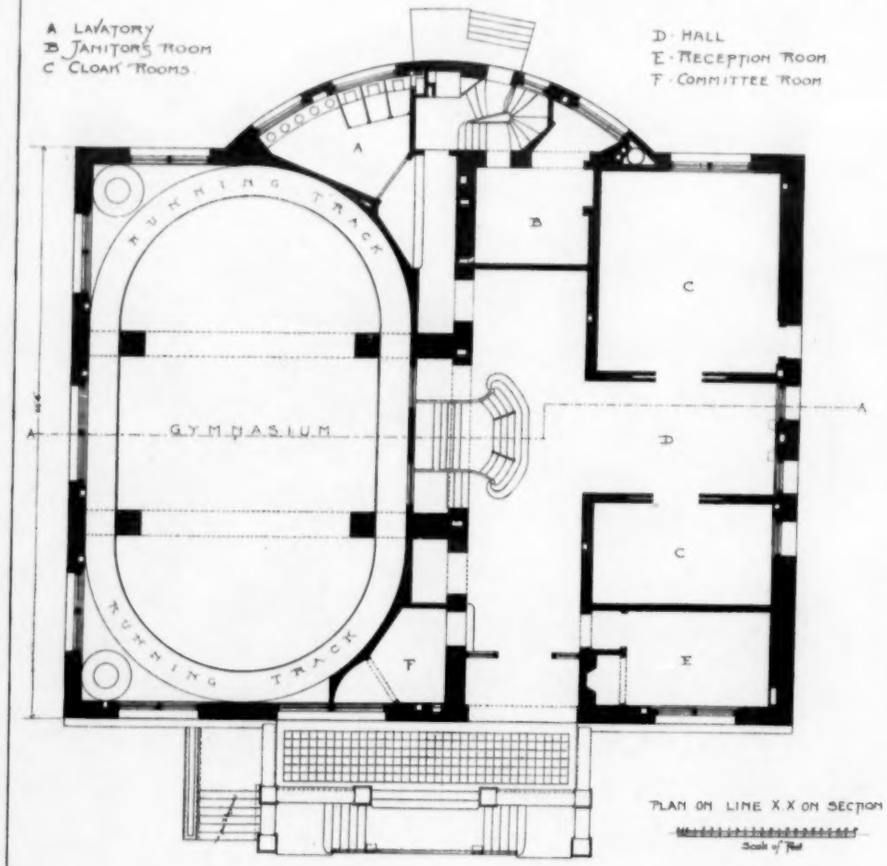
A LAVATORY
B JANITOR'S ROOM
C CLOAK ROOMS
D HALL
E RECEPTION ROOM
F COMMITTEE ROOM



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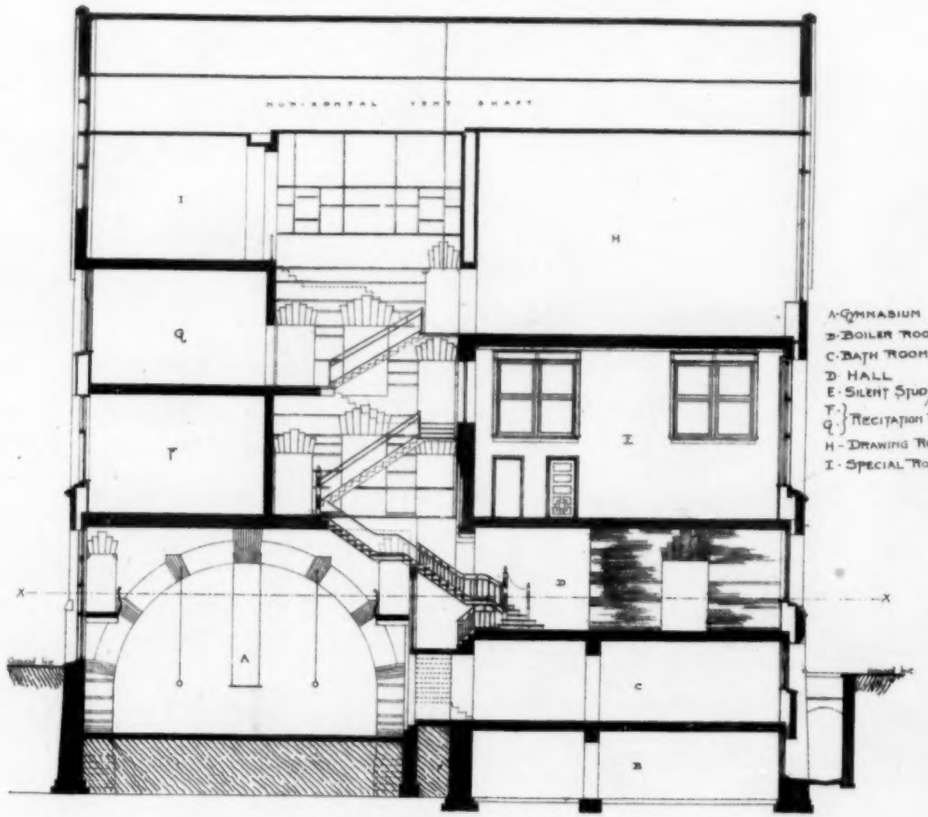
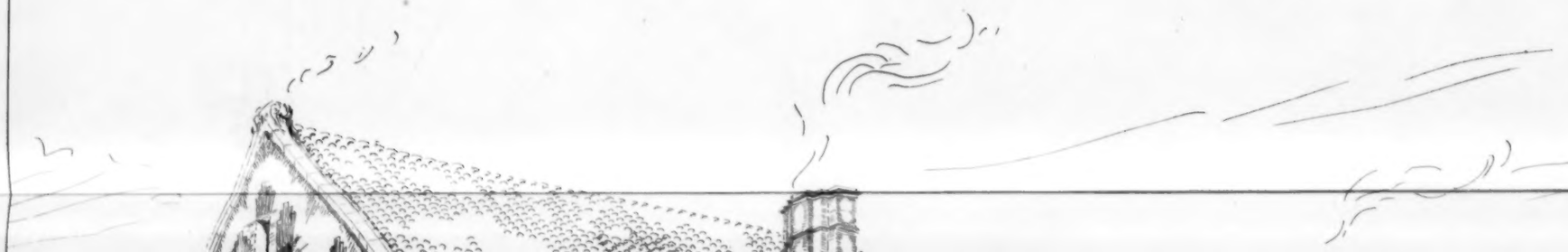
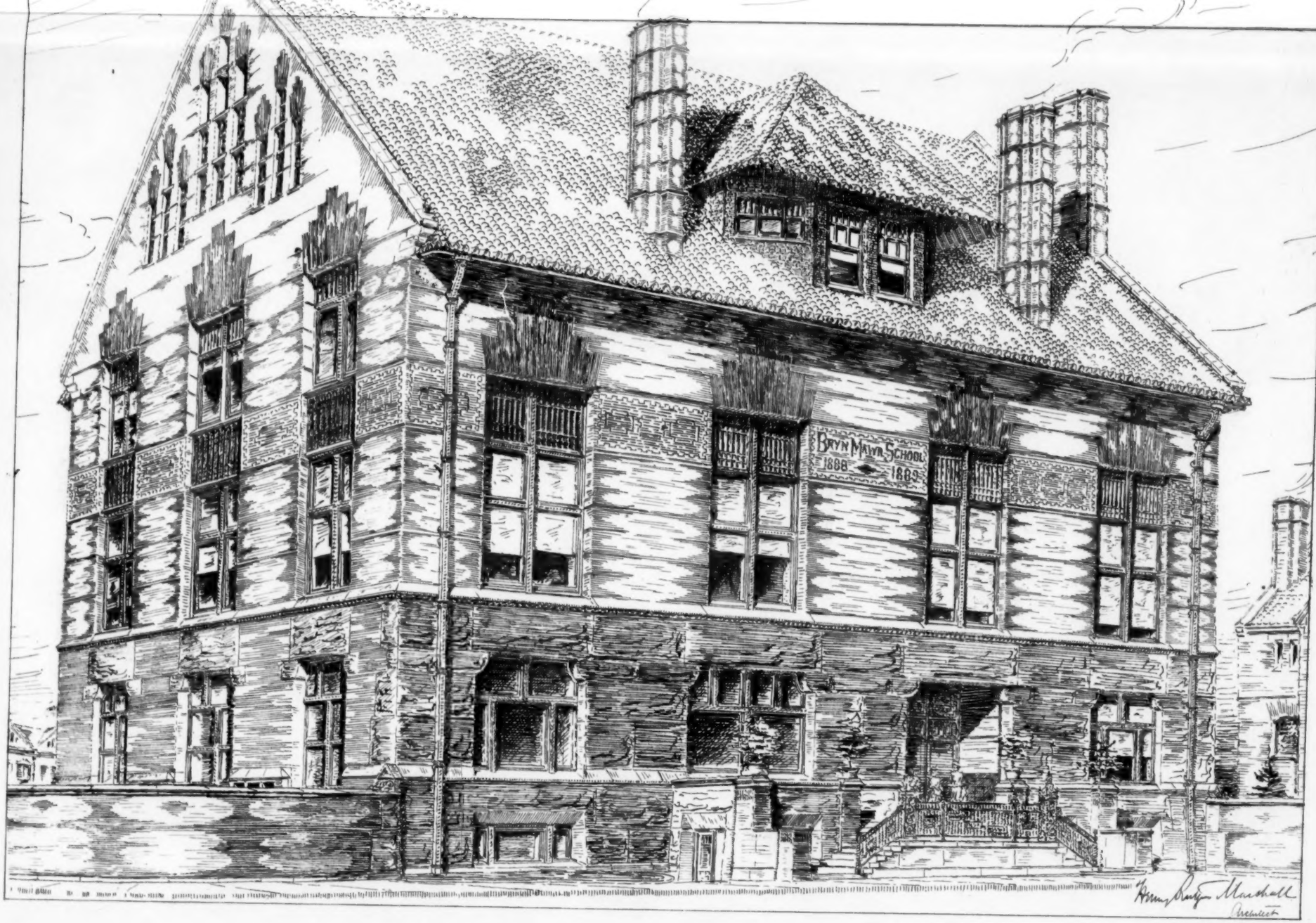


A-GYMNASIUM
B-BOILER ROOM
C-BATH ROOMS
D HALL
E-SILENT STUDY RM
F. } RECITATION ROOMS
Q. }
H-DRAWING ROOM
I-SPECIAL ROOM

SECTION ON LINE A A ON PLAN





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DE LA FRONTERA · SPAIN ·

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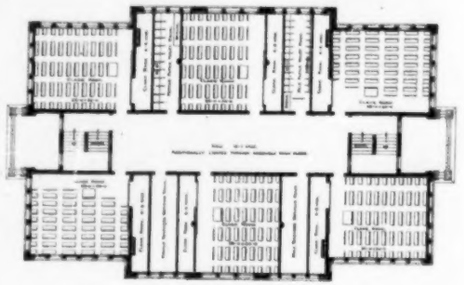
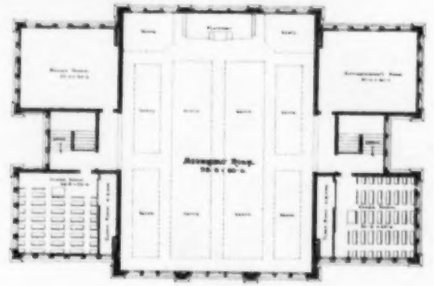


First Story.



Second Story.

Jas. M. Farnsworth
Egbert A. Hamilton
Wm. H. Merserreau
Architects. New York.

South Broadway Elevation.

End Elevation.

Kepperhan Ave end same as above

Yonkers School Competition.

Heliotype Printing Co. Boston.

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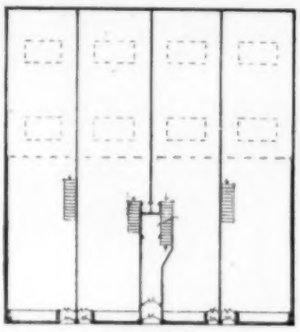
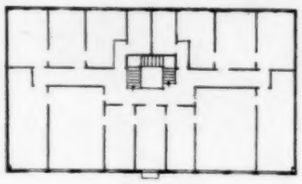
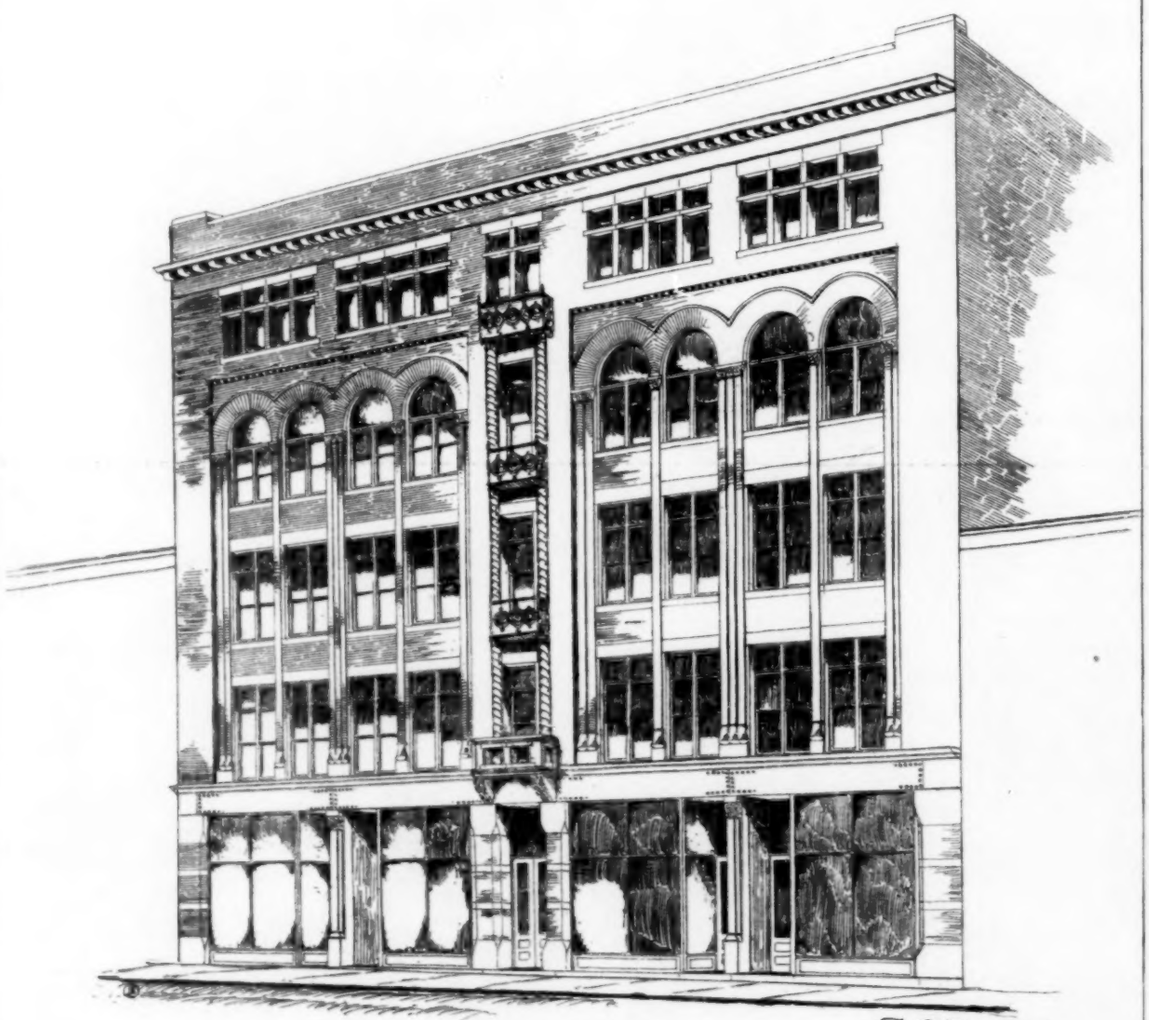


1st Floor Plan
Mohawk Block
E. A. Kent



2nd Floor Plan
Mohawk Block
E. A. Kent



MOHAWK BLOCK.

E. A. Kent Architect
Buffalo, N. Y.

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ERNEST A · COXHEAD ·
ARCHITECT ·
LOS · ANGELES ·

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